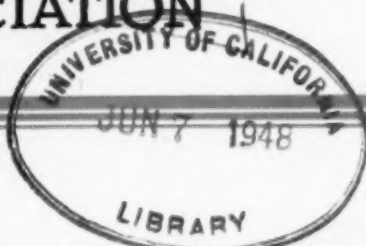


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JOURNAL
OF THE
AMERICAN VETERINARY
MEDICAL ASSOCIATION



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THE PRINCIPLES OF PLENTY

CHIEFLY A QUESTION OF SUFFICIENT LIVESTOCK

"The best economy for the farm and ranch is the marketing of home-grown hay and grain through livestock and livestock products" — a quotation from the University of Nevada—would be hard to improve upon as a fundamental doctrine of veterinary medicine.

In other words, the question of lasting abundance and good fortune for the population of the U. S. A. is best resolved by the feeding of well-selected livestock on the home farm, preferably with home-grown forage. Thus,

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SIONAL SERVICE AS SCIENTIFIC TREAT-
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THE SUCCESS OF THAT
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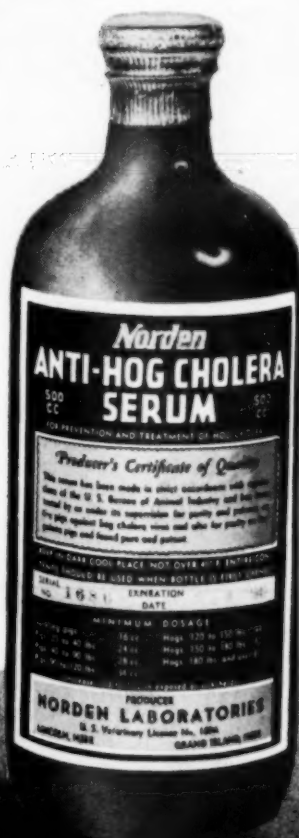
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a prominent
veterinary college—
in 1914
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VOL. CXII JUNE, 1948 NO. 855

Staphylococcic Hotis Test Reactions

An Abstract*

The author records the observations made on milk samples drawn at frequent intervals over a period of seven months from a self-contained herd of 247 Holstein-Friesian cows, the majority of which were milked by machines and stripped by hand. A critical analysis of the reactions produced in the Hotis** test by staphylococci was possible in 2,889 field milk samples from a herd

where the *Streptococcus agalactiae* infections were reduced to a low level or were completely eradicated.

Rust-colored colonies are always indicative of staphylococcic infection, but not all milk samples containing these organisms will show the colonies. Sterile raw milk samples were experimentally inoculated with pure cultures of pathogenic (toxico-

TABLE 2—Closely Related Reactions in the Hotis Test, After Sixteen to Twenty Hours of Incubation, Correlated with the Presence of Pathogenic or Nonpathogenic Staphylococci in the Milk

Description of Hotis reaction	No. out of 2,889 Hotis tests showing reaction and containing:	
	Pathogenic staphylococci	Nonpathogenic staphylococci or other organisms
1) Green colonies, with white centers, adhering to the bottom of vial	154	26
2) Same as 1, with similar colonies on sidewall.....	12	0
3) Brownish green colonies, with white centers, adhering to bottom of vial.....	56	1
4) Same as 3, with similar colonies on sidewall.....	30	1
5) Brown or russet colonies, with white centers, adhering to bottom (plate 1).....	40	2
6) Same as 5, with similar colonies on sidewall.....	10	2
7) Adherent brown central sediment with a peripheral ring or crescent of whey held at the bottom by a variable degree of coagulation of the milk above.....	19	0
8) Complete digestion producing a greenish or yellow translucent whey with a brown or green residue usually extending up one side of the vial in the form of a cylindrical mass or a flocculent deposit (plate 3).....	5	0
Totals	326	+ 32 = 358
Percentage of reliability.....	91.1	+ 8.9 = 100%

*Schalm, O. W.: Hotis Test Reactions Produced by Toxicogenic, Coagulase-Positive Staphylococci. Am. J. Vet. Res., 9, (Jan., 1948): 11-19.

**A Simple Method for Detecting Mastitis Streptococci in Milk. USDA Circular 400, 1936. By R. P. Hotis and W. T. Miller.

genic and coagulase-positive) and nonpathogenic strains of staphylococci to establish guides for comparison.

Eight closely related Hotis reactions indicate the presence of pathogenic staphylococci. Some of these are shown on the color chart, and all are described in table 1. Interpretation of the findings is more accurate if two readings are made, the first after sixteen to twenty hours of incubation and the second after forty hours' incubation. The relative efficiency of each reading and of the double reading is shown in table 2.

The following is the author's summary as it appears in the original article.

SUMMARY

"(1) Results from 2,889 milk samples have been analyzed. The milk was subjected to the Hotis test, to microscopic studies of stained smears prepared from the incubated Hotis samples, and to the streaking of the incubated samples on veal infusion agar containing cow blood for the demonstration and isolation of toxicogenic staphylococci.

"(2) Pathogenic staphylococci (toxicogenic and coagulase-positive) were found in 590 samples.

"(3) Microscopic examination revealed staphylococci in 71.0 per cent of the samples shown to contain pathogenic staphylococci. In 12.4 per cent of these smears, a concomitant increase in leucocytes was observed. However, staphylococci were also observed in smears prepared from milk not infected with pathogenic staphylococci. Forty-four per cent of the total smears revealing staphylococci fell in the latter category.

"(4) After sixteen to twenty hours of incubation the principal Hotis reactions indicative of pathogenic staphylococci were the occurrence of adherent green, greenish brown, brown, or russet-colored colonies with white centers. By attributing diagnostic significance to these reactions, 58.3 per cent of samples containing pathogenic staphylococci were detected, whereas an 8.9 per cent error was encountered due to false-positive reactions produced by nonpathogenic staphylococci or other organisms.

"(5) Upon incubation of the Hotis samples for forty hours, it was found that a characteristic digestion was indicative of the presence of pathogenic staphylococci. A few samples showing typical colonies after twenty hours of incubation failed to digest the sample during the second period of incubation. Thus, it was necessary to observe the Hotis samples both after twenty hours and forty hours of incubation in order to detect the maximum number containing pathogenic staphylococci. A combination of the two readings made on 1,733 Hotis samples, among which 325 contained pathogenic staphylococci, led to the detection of 80.0 per cent of the 325 samples. However, 20 false-positive reactions were recorded, leading to a 7.1 per cent error.

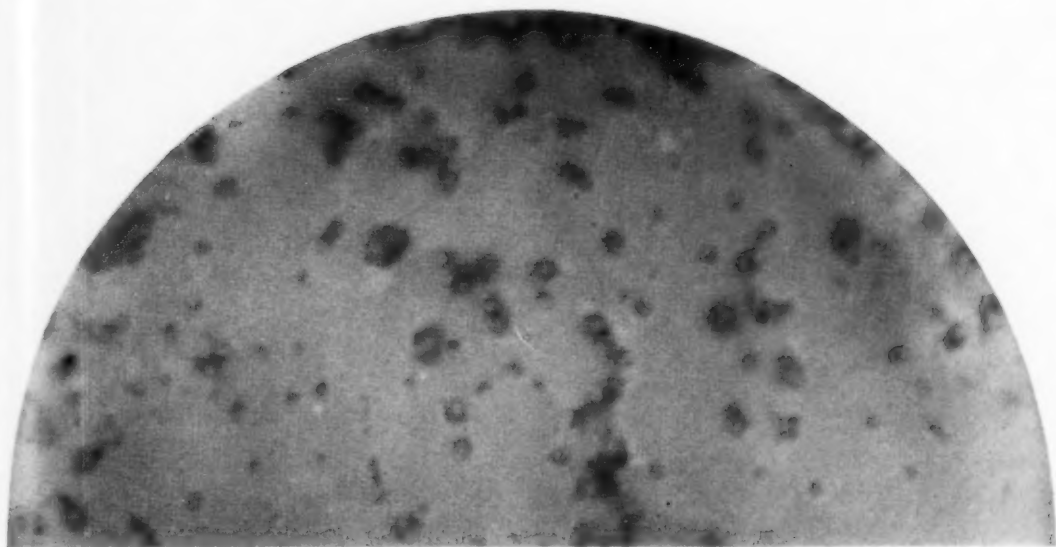
"(6) Hotis samples were prepared from sterile raw milk and inoculated with 0.1 cc. of pure broth cultures of either pathogenic or nonpathogenic staphylococci. In one series consisting of 37 pathogenic and 44 nonpathogenic strains, 83.7 per cent of the former cultures produced the typical Hotis reactions, whereas only 4.5 per cent of the nonpathogenic strains produced positive reactions during twenty hours of incubation. In a second series consisting of 55

TABLE 3—Comparison, on 1,733 Hotis Samples, of the Relative Efficiency of the First and the Second Readings for the Detection of Pathogenic Staphylococci

No. Staph.- pos. milk samples	Incubation time	Hotis samples showing typical reactions					% Staph.-pos. samples detected by Hotis test
		Total no.	True- pos.*	False- pos.†		% Staph.-pos. samples detected by Hotis test	
			No.	%	No.		
325	20 hr. (1st reading)	231	216	93.5	15	6.5	66.6
	40 hr. (2nd reading)	235	227	96.5	8	3.5	69.8
	Results (1st & 2nd readings combined)	281	261‡	92.9	20‡	7.1	80.0

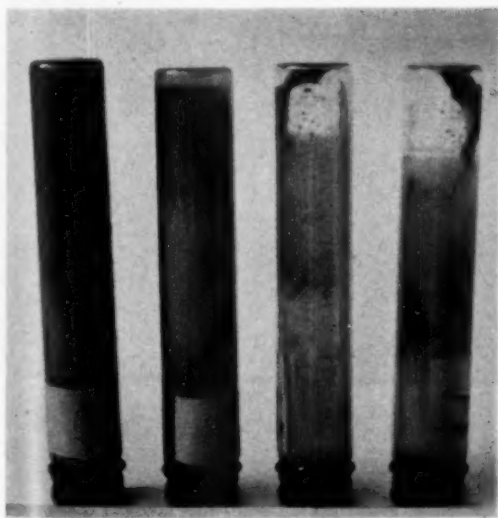
*Pathogenic staphylococci isolated on blood agar. †No pathogenic staphylococci found on blood agar. ‡190 samples were positive on both readings; 26 samples were positive on the first reading but did not become digested during the second period of incubation; and 45 samples were positive on the second reading only. § Three samples gave false-positive reaction on both the first and second readings.

Fig. 2—
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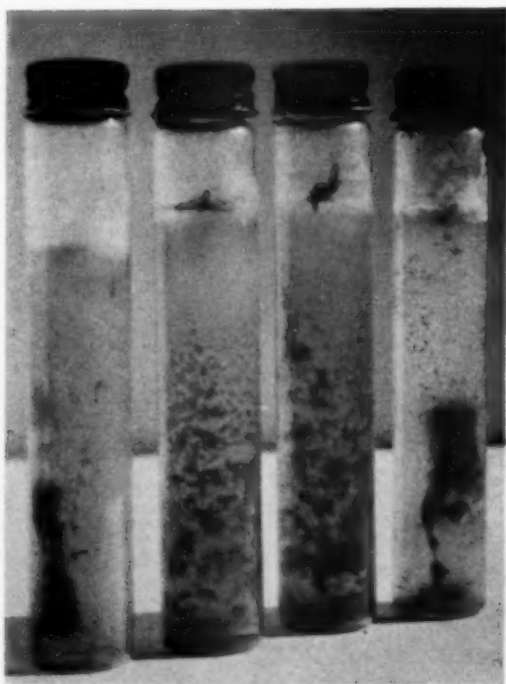
—A. E. Graffius.

Fig. 1—View of one half of the bottom of a Hotis test vial, after twenty hours at 37 C., showing adherent brown colonies with white centers. This reaction was produced by pathogenic staphylococci.



—A. E. Graffius.

Fig. 2—Four Hotis test samples containing pathogenic staphylococci. The samples were incubated at 37 C. for forty hours and they show the various stages (1. to 4.) of a characteristic digestion caused by pathogenic staphylococci. The vials have been inverted to display the reactions more advantageously.



—A. E. Graffius.

Fig. 3—Four Hotis test samples showing the complete digestion produced by pathogenic staphylococci during forty hours of incubation at 37 C. The milk has been changed to a yellowish translucent whey and a brownish residue. The residue is in the form of a cylindrical plug in the vials on each end, whereas in the two center vials it appears as a flocculent deposit on one sidewall.

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pathogenic and ten nonpathogenic *Staphylococcus* cultures, the inoculated Hotis samples were incubated for a total of forty hours. After twenty hours, 72.7 per cent of the pathogenic strains had produced positive Hotis reactions, and by the end of forty hours of incubation, 81.8 per cent of the pathogenic *staphylococci* had produced digestion of the milk. The ten nonpathogenic strains of *staphylococci* did not cause positive reactions."

Michigan Pound Law

During the 64th Legislature session of 1947, the State of Michigan passed Act 241 (Senate Bill No. 201, introduced by Senators Bonine and Green) "to protect the public health and welfare; and to regulate the humane use of animals for the diagnosis and treatment of human and animal diseases, the advancement of veterinary, dental, medical and biological sciences, and the testing and diagnosis, improvement and standardization of laboratory specimens, biologic products, pharmaceuticals and drugs." The Act in its entirety reads as follows:

The People of the State of Michigan enact:

Sec. 1) The public health and welfare depend on the humane use of animals for the diagnosis and treatment of human and animal diseases, the advancement of veterinary, dental, medical and biological sciences, and the testing and diagnosis, improvement and standardization of laboratory specimens, biologic products, pharmaceuticals and drugs.

Sec. 2) The state commissioner of health, with the approval of an advisory committee appointed by the governor consisting of the dean of the medical school of the university of Michigan, the dean of the veterinary department of the Michigan state college of agriculture and applied sciences, the dean of the medical school of Wayne university, the dean of the dental school of the university of Detroit, the secretary of the Michigan board of registration of osteopathy, a representative from a research laboratory within the state of Michigan and subject to the control of the federal security agency, and 2 member representatives of the state federated humane society, is hereby authorized to regulate and to promulgate rules and regulations controlling the humane use of animals for the diagnosis and treatment of human and animal diseases, the advancement of veterinary, dental, medical and biological sciences, and the testing and diagnosis, improvement and standardization of laboratory speci-

mens, biologic products, pharmaceuticals and drugs. Such rules and regulations shall be adopted in conformity with the laws of this state.

Sec. 3) The state commissioner of health is hereby vested with the administration of the provisions of this act and is authorized to incur such expenses as shall be authorized by the legislature. The members of the advisory committee shall serve without compensation, but shall be entitled to actual and necessary expenses incurred in performance of official duties.

Sec. 4) The state commissioner of health, or his duly authorized representative, or any member of the advisory committee, is hereby authorized to inspect any premises or property on or in which animals are kept for experimental purposes, for the purpose of investigation of compliance with the rules and regulations adopted hereunder. Such regulations shall provide for such humane treatment of animals as is reasonably necessary for the purposes of this act.

Sec. 5) No person, firm, copartnership, association or corporation shall keep or use animals for experimental purposes unless registered to do so by the state commissioner of health. The state commissioner of health is hereby required to grant registration for the humane use of animals for experimental purposes subject to compliance with the rules and regulations promulgated under the provisions of this act. The state commissioner of health is authorized to suspend or revoke any registration under the provisions of this act for failure to comply with the rules and regulations promulgated hereunder. The findings of fact made by the state commissioner of health acting within his powers shall, in the absence of fraud or arbitrariness, be conclusive, but the circuit court of the county of Ingham shall have power to review questions of law involved in any final decision or determination of said commissioner: *Provided*, That application is made by the aggrieved party within 30 days after such determination, and the said court shall have jurisdiction to make such orders in respect thereto as justice may require.

Sec. 6) There is hereby appropriated from the general fund of the state the sum of \$1,000.00 to the state commissioner of health to carry out the provisions of this act.

Were biologists able to explain the equipment, technique, or what have they, that enables birds to migrate from Hawaii to Alaska, for example, the knowledge would provide scientific clues of unpredictable value which, by comparison, would make radar as simple as a threshing machine.

Animal Diseases Transmissible to Man

R. M. HOFFERD, D.V.M.

Cedar Rapids, Iowa

IT HAS BEEN SAID, "Civilization depends upon a vital topsoil; poor topsoil, poor people." Topsoil fertility can be preserved only by extensive livestock farming. Since the veterinary profession is the greatest safeguard of the livestock industry, it holds then that upon this profession depends our standard of living and even our civilization.

During the years of development of this country, a number of devastating livestock plagues have made their appearance. Each of these in turn was eradicated or controlled by the veterinary profession. Had they been permitted to become established, these plagues would have jeopardized the livestock industry. Thus, the development of this country and the standard of living would have been seriously impeded.

Before the days of veterinary science, animal plagues caused not only the loss of animals by the millions but also of human beings. Likewise, these plagues resulted in famines. History records many instances of whole nations seriously menaced by animal plagues even to the extent of completely destroying animal industry, the livelihood of farmers, the food supply, and the lives of the people. Rinderpest caused a loss of more than 3,000,000 cattle in Italy in three years. In one year it wiped out the cattle industry of Egypt and later brought England to the verge of a meat and milk famine. Rinderpest has existed in many parts of the world but, fortunately, it has been kept out of the United States by rigid quarantine.

Through the coöperation of the U. S. BAI, the states, and the practicing veterinarians, a number of other plagues have been eradicated or controlled. Contagious pleuropneumonia of cattle was completely eradicated from this country in the 1890's, as foot-and-mouth disease has been on several occasions. We have been so concerned about the current outbreak of this disease

in Mexico that a hundred or more veterinarians have been dispatched there to direct its eradication and prevent its spread to the United States. Hog cholera, the most devastating disease of swine, has been controlled by hog cholera antiserum developed by scientists in the U.S. BAI. Without this product, much of the swine industry would have been wiped out on numerous occasions and certainly could never have been developed to its present proportions.

A cattle scourge known as Texas fever spread over the southern states and seemed certain to endanger the entire cattle population of this country. Three BAI scientists, Drs. Smith, Curtice, and Kilborne, discovered that Texas fever was tick-borne and, by eliminating the prevalent cattle tick, the disease was eradicated. Incidentally, by this discovery, the scientists working with yellow fever in man were given their cue and soon found that the mosquito was the vector. Mosquitoes were eliminated, yellow fever controlled, and the Panama Canal, its construction delayed by this disease, was completed.

A number of other animal scourges of economic importance, have been eradicated by the efforts of veterinarians. But it might be well to enumerate some of the diseases of animals which have a direct bearing on human health.

Foot-and-Mouth Disease.—Foot-and-Mouth disease, already mentioned, the most highly communicable disease of animals, is slightly infectious to man.

Glanders.—This disease of the soliped is fatal to man. Man is quite susceptible. The mode of infection is usually through skin abrasions. It occurs among men who care for infected horses. Through mallein testing, quarantine and destruction of reactors, and interstate regulations, the disease was practically eliminated even before the equine population decreased in numbers. Glanders is now rare in this country. In man, it occurs frequently in Europe where the flesh of horses is used as food.

Anthrax.—For years anthrax has been a dread disease in cattle, horses, sheep, and in other species to a lesser extent. It may be transmitted to human beings who contact sick

Presented before a public health forum sponsored by the Iowa Department of Public Health, Mason City, Iowa, Sept. 25, 1947.

animals or materials from sick animals such as meat, hides, wool, or bristles. The spore-forming organism is resistant and persists for years. Veterinarians have been infected in the careless performance of autopsies. It was commonly transmitted in finished products such as shaving and hair brushes before sterilization was required. Anthrax in man may assume any of three forms: (A) cutaneous type (malignant carbuncle); (B) pulmonary form (wool-sorter's disease); or (C) the intestinal form. Usually, the second and third forms are rapidly fatal. It is possible that serum could be of value if given early. The cutaneous form is more frequent and, without treatment, is about 50 per cent fatal.

A highly potent anthrax antiserum for human use, which has reduced the mortality of cutaneous anthrax to a low figure, has been developed by Eichhorn, Berg, and Kelsner. Veterinarians are ever on the alert for this devastating disease which is a serious menace to public health. Control measures consist in prophylactic vaccination, rigid quarantine, and sanitary precautions.

Tuberculosis.—This has been regarded as one of the most important diseases of cattle communicable to man. It was once thought that the bovine tubercle bacillus was not important in human tuberculosis but later research proved that it was. In human infection with the bovine type, certain lesions predominate. The tuberculous infection of the tonsil and cervical lymph nodes are often of bovine origin. Tuberculosis of the mesenteric glands and of bone is also frequently due to the bovine type. On the other hand, pulmonary tuberculosis due to the bovine type is rare. Human infection with bovine tubercle bacilli usually occurs through the consumption of infected milk.

Due to the discovery of subcutaneous tuberculin by Dr. Koch and then the development of intradermal tuberculin, it was possible to test all cattle in this country. At the present time, every state has become tuberculosis accredited, which means the incidence of the disease has been reduced to 0.5 per cent, by the test and slaughter method. This was a tremendous task for which the veterinary profession deserves the credit. However, we must be on the alert to retest infected herds so that the disease can be held in check and perhaps eventually completely eradicated.

As the result of tuberculin testing, the incidence of tuberculosis in cattle has been markedly reduced as signified by meat inspection records at packing plants under government inspection. Likewise, the incidence of bovine tuberculosis in man has been materially reduced according to available data.

The pasteurization of milk is an added safeguard against the transmission of bovine tuberculosis to human beings.

Rabies.—The most dreaded disease affecting man and animals is rabies. It has been known for centuries that rabies was transmitted by the bites of rabid animals. Early workers showed that the disease could be produced experimentally by the inoculation of saliva collected from rabid animals. Louis Pasteur was first to recognize that the brain was the seat of the disease and that the causative agent existed there in a pure state. The manner by which the virus reaches the saliva from the nervous system is not certainly known but is believed to be through the nervous mechanism of the salivary glands and nerve endings in the tongue.

The disease is transmitted almost entirely by carnivorous animals, especially dogs, because these animals naturally attack others by means of their bite. Various wild animals also transmit the disease. However, bite-wounds made by animals suffering from rabies do not always cause the disease. Bites in the face and neck region are the most dangerous. Bites through clothing or thick hair coats are less dangerous than those in regions where the skin is exposed.

Pasteur developed a vaccine which is widely used prophylactically in man. The Pasteur treatment can be applied to animals successfully, but it has seldom been used because of its high cost. Practical vaccines have been produced for use on animals by treating the fixed virus with phenol or with chloroform. Vaccines on the market are all standardized by the Habel mouse test and the efficiency is very high. It has been demonstrated that in areas where compulsory immunization of dogs has been practiced, the incidence of rabies has been reduced to practically nil.

The chief prevention is in eliminating the disease from the canine species. England was free from it for twenty years, when the reckless importation of a dog in the incubation period started the disease anew. It behooves all of us to support any quarantine measures, or compulsory vaccination of dogs, which will prevent man from contracting the dread disease.

Erysipeloid Infection.—Of late years, we have recognized erysipeloid infection in man, a local, highly inflammatory infection, contracted from contact with swine erysipelas. This infection has become increasingly prevalent from exposures through the broken skin. Farmers and other workers handling carcasses of swine dead from erysipelas, or veterinarians who perform autopsies without the protection of rubber gloves, are most frequently affected. Laboratory workers likewise have become infected. This infection in man has been successfully treated by the aid of x-ray, penicillin, and the specific antiserum applied locally as a wet pack. A few fatal cases have occurred

as a result of blood stream infection or septicemia.

Brucellosis.—We hear a great deal today about undulant or Malta fever or brucellosis in man. Three types of the *Brucella* organism are known and all are pathogenic to man: *Brucella melitensis* (goat), *Brucella abortus* (cattle), and *Brucella suis* (swine).

The bovine type is not nearly so virulent in human beings as formerly supposed, while the porcine type is often highly virulent. About three-fourths of the cases of human undulant fever in Iowa have been of the porcine type. It has also been determined that, when the porcine type infects a dairy herd and contaminates a milk supply, a virulent endemic may be produced. However, infection in man by the porcine type is usually acquired by contact with infected animals.

There are many things that could be said about brucellosis as a public health problem, but there is still much to be learned. In cattle, the test and slaughter method has been used to eliminate infected animals, especially in dairy herds. This has more recently been supplemented by vaccination of calves between 4 and 8 months of age. The latter method has been quite efficient in building up immune herds. Pasteurization of milk for human consumption is still a practical and useful safeguard. Work is being done in formulating uniform eradication methods.

Tularemia.—This is an infectious disease caused by *Bacterium tularensis*. Primarily, it occurs in nature as a fatal bacteremia of wild rodents, especially rabbits and hares. Secondly, it is a disease of man, transmitted from rodents to man by the bite of an infected blood-sucking fly or tick, or by contamination of the hands or conjunctiva with portions of the internal organs or with the body fluids of infected rodents, flies, or ticks. The skin of the hands need not be broken to cause infection. Laboratory workers have become infected while studying this disease. Thorough cooking destroys the infection and renders a rabbit safe for eating purposes. An antiserum is of considerable value in the treatment of the disease.

Psittacosis.—This is an avian disease. It is widely distributed among wild parrots, parakeets, parrotlets, cockatoos, and related species. In recent years, it has been found in many bird-breeding establishments and pet shops as an acute or chronic, inapparent, and latent infection of parakeets, canaries, and finches. With increasing frequency, single or multiple household or occupational infections among human beings exposed to such sources have been recognized and proved scientifically. The disease is caused by a filterable virus. Control of the disease calls for an appreciation

of the dangers of contact with pet birds, especially of unknown origin, together with the creation of a bird industry free from psittacosis.

Smallpox and Cowpox.—Variola, or smallpox, is primarily a disease of man. Secondly, it infects cattle and is then called cowpox. From cattle the disease may be passed back again to man in such a modified form that it produces a mild type of disease, vaccinia, which protects against smallpox infection. The cause is a filterable virus. Vaccination is the best preventive.

Equine Encephalomyelitis.—Equine encephalomyelitis, or sleeping sickness of horses, is caused by a filterable virus. It is a disease found naturally in horses and mules, sometimes in certain birds and in man. The disease is thought to be transmitted by insect vectors, according to studies of R. A. Kelser and others. Horses may be actively immunized against the disease.

Food Infections.—Certain members of the *Salmonella* group are associated with symptoms of food poisoning characterized by nausea, vomiting, abdominal pains, and diarrhea. Several of these organisms are of animal origin, being transmitted to man by way of food supply. The common *Staphylococcus* may also cause food infection.

Botulism is an acute toxemia caused by the toxin of *Clostridium botulinum*. The toxin is usually ingested in foods in which this organism has grown. During the early years of its history, it was believed to be caused by meat products. Since then it has been shown that vegetables and vegetable products are also important sources. The toxin is destroyed by boiling.

Trichinosis.—The worm, *Trichinella spiralis*, is the cause of trichinosis. It is transmitted to man by the eating of raw or inadequately cooked pork. The parasites find their way to the striated muscles of man where they become encysted. Death or prolonged invalidism may ensue. Thorough cooking of all pork to be consumed is the best safeguard. Refrigeration at 5 F. for twenty days or at 2 F. for twenty-four hours will also destroy the parasite.

Septic Sore Throat.—Septic sore throat in man is caused by *Streptococcus epidemicus*. The organism is primarily a human pathogen, but it may set up a focus of infection in the udder of the cow, whence it is transmitted back to man by way of the milk supply. Proper pasteurization is the only sure safeguard.

Bubonic Plague.—This is an acute infectious disease caused by *Pasteurella pestis*. Primarily, it is a disease of rodents, especially rats; secondarily, it is a disease of man. The bubonic type in man is transmitted from rodents by

means of infected fleas. The pneumonic type spreads from man to man directly.

The control of rats is essential to the control of bubonic plague in man. Pneumonic plague lends itself to no practical control methods. Ground squirrels of California are naturally infected, tending to perpetuate the disease. No practical means are available for controlling infection among rodents infesting rural areas.

Rocky Mountain Spotted Fever.—One of two rickettsial diseases endemic in the United States is Rocky Mountain spotted fever. The disease is transmitted to man by ticks of two or more species. It has been recognized in 31 of the states. Animals furnish food supply for ticks and infected animals probably exist in nature. The disease is not transmitted from person to person. Ticks remain infected for life and pass the virus to succeeding generations. Prevention of the disease is largely one of personal care in avoiding ticks, plus the use of vaccine where that is not feasible.

Typhus Fever.—The other rickettsial disease of man is typhus fever. Endemic typhus is transmitted by fleas from rodents to man, and epidemic typhus is transmitted from man to man by lice. Many animals, chiefly rodents, have been found susceptible to typhus. Prevention and control are based on delousing and the destruction of rats.

Actinomycosis.—Actinomycosis is a chronic infectious disease caused by the *Actinomyces bovis* or related members of the ray fungus group. It is characterized by the growth of granulating tumors, which eventually suppurate, discharging the characteristic granular bodies of the infection. No portion of the body is immune from invasion but the head and neck are most often attacked.

Men, cattle, and hogs are most often affected. There is no evidence of infection from animal to man through milk, meat, or accidental inoculation. The organism is present on straws, grains, and weeds. The consensus is that portals of entry are created by trifling traumas, into which vegetable materials become lodged. The habit men have of picking their teeth with hay or straw is probably the method of infection. Animals may act as disseminators of the infection in nature by contaminating plants.

OTHER DISEASES TRANSMISSIBLE FROM ANIMAL TO MAN

Tetanus is an infection which cannot be charged directly to animals except as they act as passive carriers of the organisms, disseminating them almost universally.

Infection gains entrance through wounds, particularly puncture wounds, which heal over quickly and exclude the air. Tetanus antitoxin

is an efficient prophylactic agent but the immunity is only passive. Ramon, a French veterinarian, developed an anatoxin (toxoid) which establishes lasting immunity.

Rat bite fever in man is caused by a spirochete transmitted by the bite of infected rats.

Leptospirosis, Weil's disease, or infectious jaundice is an acute atypical or latent infection caused by the spirochete, *Leptospira icterohemorrhagiae* or related species. Primarily, it is an infection of rats and dogs, secondarily of man. Prevention consists in sanitary precautions.

Ringworm of cattle, horses, dogs, and cats may be transmitted to man and is often a source of serious trouble.

The tapeworm, *Tenia saginata*, is a parasite of man, but the ox is the host of the larval or cysticercus stage. Likewise, man harbors the mature *Tenia solium*, while the hog is the usual host of the larval stage. Thorough cooking of both beef and pork will prevent infestation in human beings.

Gas gangrene organisms of man are frequently found in the intestinal canal of normal animals where they lead a saprophytic existence. The disease is a pestilence of war, causing wound infections.

Diphtheria is primarily an infectious disease of man. On rare occasions animals may become infected, thus acting as a source of infection for man. A toxoid confers lasting immunity against this disease.

Scarlet fever, also is primarily an infectious disease of man. Cows may become infected in the udder from human sources and pass the disease back to man through the milk.

CONCLUSION

In closing, it might be said that animals domesticated by man have taken an important part in the spread of infections in the human family. Full coöperation between the allied medical professions and health authorities is needed in minimizing the human danger from the diseases of animals communicable to man.

There has probably been more discussion and more copy written on the subject of research during the past year than in any other twelve months of history.—*Cap Mast in Agric. Leaders' Digest*.

The discovery by BAI scientists that certain pathogenic microorganisms complete their life cycle in the bodies of arthropods remains a brilliant lighthouse of medical history, and most certainly a page of hagiology in veterinary science.

Some Infectious Diseases of Domestic Animals in China

II. Horses

CHING-SHENG LO, D.V.M.

Nanking, China

IN A PREVIOUS report,* some infectious diseases of animals (cattle) in China were reported. This paper reports on some infectious diseases in horses.

Glanders.—Glanders is still prevalent in all parts of China. It occurs frequently in army horses and according to some estimates, the infection is present in 50 per cent of the horses. In horses and mules that are raised on farms, the infection is much lower, probably not over 5 per cent.

Among the solipeds, it is commonly seen in horses and mules, while donkeys are seldom affected. The disease usually runs a chronic course in horses, and exacerbation occurs periodically, usually due to overwork or underfeeding; but in the end the animal dies from acute glanders. When mules contract the disease, the course is usually acute with such symptoms as complete loss of appetite, high fever, difficult and rattling respiration, mucopurulent discharge from the nose, and glanderous ulcers in the nasal cavity. In postmortem examination, the typical nodules are invariably found in the lungs. Cutaneous glanders is fairly common in horses, but it is of rare occurrence in mules.

It is well known that glanders is incurable, but since the introduction of the sulfonamides, some experiments were conducted on the effects of the sulfonamides on the glanders bacillus *in vitro* by Sheng and Chu.² They employed sulfanilamide, sulfapyridine, and sulfathiazole. The results revealed that with a concentration of 50 mg. of sulfanilamide/100 cc., 10 mg. of sulfapyridine, or 5 mg. of sulfathiazole, no growth of the bacteria can be detected with the naked eye after an incubation period of four days. If the concentration is raised to 50 mg. of sulfanilamide/100 cc., 15 mg. of sulfapyridine, or 10 mg. of sulfathiazole, no growth can be detected after ten days' incubation. The bacteriostatic power is

stronger against the slow-growing, smooth strain than the rapid-growing, rough strain. With a concentration of from 50 to 300 mg./100 cc., the organisms of the smooth type are not only being inhibited from growth but are actually killed after an exposure of four days.

In another trial, the same writers² employed sulfadiazine. The results revealed that the bacteriostatic power of sulfadiazine upon the glanders bacilli was not only much stronger than that of sulfanilamide and sulfapyridine but also definitely higher than that of sulfathiazole. A concentration of 1 to 5 mg./100 cc. was able to inhibit the growth of the bacilli for four days, and a concentration of 5 to 10 mg. inhibited the growth for ten days. With a concentration over 10 to 15 mg., no growth could be detected in a month, whereas the control tubes were definitely turbid in twenty-four hours' incubation.

Hu³ treated several cases of acute glanders in mules, the results of which may be summarized as follows: Both sulfanilamide and sulfathiazole were employed in the treatment of 3 clinical cases of glanders in mules and 1 artificially infected case in a donkey. Spectacular effects were observed upon the administration of the drugs, the action of which was quite alike. Fever was suppressed, dyspnea and nasal discharges were stopped during the course of medication; but as soon as the administration of the drugs was discontinued, symptoms of glanders reappeared with exaggeration. Postmortem and cultural examinations as well as animal inoculation were all positive for glanders. It is concluded that the sulfonamides have no curative effect on glanders.

Epizootic Lymphangitis.—The disease has been reported in South China where the climate is hot and rainy. In the South, the horse population is small, and the occurrence of epizootic lymphangitis is sporadic in character. The disease is easily confused with glanders which is prevalent in all parts of China.

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*Lo, Ching-Sheng: Some Infectious Diseases of Domestic Animals in China. I. Cattle. J.A.V.M.A., 109, (Oct., 1947):272-273.

Strangles.—This disease is prevalent in horse-breeding stations and usually occurs in young animals. The disease is well known to our profession and no further comment is necessary.

Anthrax.—Anthrax occurs sporadically and sometimes enzoötically in China. Once I saw a mixed group of 30 horses and mules, all of which had anthrax. Upon the administration of anthrax antiserum (bovine origin), the mortality was about 30 per cent. One mule died one hour after the subcutaneous injection of serum, with evident symptoms of serum sickness.

Tetanus.—Tetanus is of frequent occurrence in all parts of China. I have seen cases after castration with very rapid course. The animals showed stiffness of the body and died within a few hours. At other times horses, with superficial wounds only, manifested mild symptoms of tetanus and eventually recovered.

Contagious Equine Pneumonia.—This disease is little known in China, but it has possibly occurred in Sin-kang. There was a verbal report of an outbreak in Tien-hsui (Kansu) among the horses in a cavalry school. According to information gathered by the writer, not a single case of contagious equine pneumonia has occurred among the Mongolian horses since the establishment of the school. But in 1940 the school imported 200 horses from Sin-kang; since then, the disease has appeared periodically. The disease runs a chronic course and acute cases die in about eight weeks; in protracted cases, it may last as long as six months. The most prominent symptom is pneumonia, and the lesion is confined exclusively to the lungs. No effective treatment is known.

Equine Encephalomyelitis.—This disease may exist in China, but up to the present no authentic case has been reported.

Equine Influenza.—Little is reported on the occurrence and distribution of equine influenza in China. It is known that the disease has appeared in horse-breeding stations, remounts, and horse markets.

Infectious Anemia.—This disease had not been reported in China before World War II, but after the surrender of Japan in 1945, thousands of Japanese army horses were scattered throughout China and the disease has appeared occasionally since then. It is believed by some Chinese army

veterinarians that infectious anemia has been introduced from Japan and they fear that the disease may disseminate to the native horses.

Rabies.—Isolated cases of rabies in horses and mules have been reported to the writer. It is transmitted solely from the bite of rabid dogs.

Surra.—This disease is prevalent in the western part of Yunnan (Teng-chung district). In that region, the climate is almost subtropical and there are two caravan routes connected with Burma. The means of transportation is chiefly by horses and mules. The number of animals in a caravan varies from 30 to several hundred animals. When the animals contract the disease, they usually die in several weeks. The mortality is almost 100 per cent. The disease was presumably introduced from Burma. Two cases were also reported from Anshun, Kwei-chow.

Dourine.—It is believed that dourine has existed in the northwest of China for a number of years, but no authentic case has been reported in veterinary literature. There is a disease that occurs in Kansu with manifestation of posterior paralysis, which closely resembles the terminal stage of dourine. During the spring of 1946, H. P. Hu communicated with the writer that he had encountered 2 cases of dourine in mares at Lanchow (Kansu). The first case manifested edematous swelling on the left mammary gland; from the edematous fluid he found a large number of trypanosomes which morphologically resembled *Trypanosoma equiperdum*. The second case was suspected of dourine and, on examination of the vaginal fluid, the same trypanosomes were present. No detailed study was made by Dr. Hu.

Piroplasmosis.—Piroplasmosis has been reported to occur in Yunnan, Kwei-chow, and Kwangse provinces. Whether it occurs in other parts of China is not definitely known at present. Very little is known of equine piroplasmosis in China.

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U. S. Foot-and-Mouth Disease Research Laboratory: Where?

President Truman signed a bill the latter part of April authorizing the USDA to construct and operate, on a coastal island, a laboratory for United States research on foot-and-mouth disease. The legislation specifically rules out Long Island, the eastern extremity of which was previously eyed as an excellent possibility. While awaiting the selection and approval of a suitable location, the USDA is drawing up rough plans for buildings and facilities and is formulating several research projects.

Hearings before Congressman (Dr.) George W. Gillie's agriculture subcommittee in the House of Representatives on Jan. 26-27 and Feb. 3-4, 1948, incident to debate on the now approved laboratory bill, brought out a number of pertinent views as to the suitability of certain locations under consideration.

For example, Dr. J. Traum, of the University of California, said that unless the project were erected "on our own soil and under our own directions," we would be deprived of full control of operations and, therefore, could not function efficiently. That rules out "Mexico or any other country," he declared.

Dr. B. T. Simms, U. S. BAI chief, pointed out that Africa, the Philippines, and South America have been considered as possible sites, but that there would be a serious personnel problem contingent upon such locations. A research worker's value on an experiment depends upon his steady service until the goal is reached, but there are few men who would consent to a longtime assignment, as foot-and-mouth disease research requires, so far away from their homes. Even if they could take their families with them, many would object to having their children educated in foreign schools.

Dr. R. E. Shope, prominent figure in the Grosse Isle rinderpest study during World War II and head of the virus laboratories of the Rockefeller Institute at Princeton, N. J., said it was his personal opinion that a well-controlled laboratory anywhere in the United States would not be nearly as much of a threat as the outbreak of infection in Mexico right now. However, he discouraged locating it in a section of dense

livestock population and advocated "a site on the eastern seaboard somewhere." He warned against establishment on an island such as the one used for rinderpest research, which "the boys called the Alcatraz of the St. Lawrence." Morale is an important factor in the success of any undertaking, and high morale cannot be maintained on a remote, dreary island, he cautioned.

Several others who testified, including representatives of livestock producers, indicated willingness to leave the location choice to scientists who are qualified to make such decisions. Others stated that fluctuating diplomatic relations and the changing political picture abroad make it inadvisable to try to establish a long-range project in any foreign nation. Also mentioned was the desirability of locating the laboratory within easy access to other research institutions and libraries, so that project personnel would have opportunities for consultation with research men in related fields.

Foot-and-Mouth Quarantine Lifted from Large "Suspect" Area

A triangular area of more than 1,000 square miles in Mexico was freed from quarantine in April following veterinary inspections which revealed no evidence of present or previous foot-and-mouth infection in that sector. Accordingly, the northern quarantine line stretching across the sector was moved southward—away from the United States border—as much as 40 miles in some places.

The quarantine-freed area is bounded at its triangular points by the cities of San Luis Potosi, Aguascalientes, and Zacatecas. Announcement by the USDA of this southward thrust has psychological importance in campaign relations with the Mexican people, observers pointed out, because it relieves people in that sector of the inconvenience of quarantine restrictions and should help to increase public confidence in the success of current operations. It strategically followed a development one month earlier whereby a 100-mile segment of the quarantine line, in the State of San Luis Potosi, was pushed back as much as 50 miles at certain points (*See JOURNAL*, May, 1948: 332).

Vaccine produced in European labora-

tories with the aid of U. S. BAI veterinarians (Drs. L. O. Mott, H. W. Johnson, and E. A. Eichhorn), who are now touring and carrying on work at these laboratories, has been shipped to Mexico for use in the control program.

Foot-and-Mouth-Disease Virus a "First"

It is not generally realized that the "virus era of medicine" was launched by two veterinarians, when Loeffler and Frosch of Germany, in 1898, announced that foot-and-mouth disease was caused by a living but invisible agent. The discovery followed on the heels of tobacco mosaic virus described the same year by M. W. Beijerinck.¹ Smallpox, rabies, yellow fever, and others were known to be caused by specific agents that once baffled the microscopists. The investigation of their nature got under way from that day on. Moreover, the typing of viruses must forever be credited to Vallée and Guérin's work on the same virus following its isolation by Loeffler and Frosch, whose "Berichte der Kommission zur Erforschung der Maul-und-Klauenseuche bei dem Institut für Infektionskrankheiten" (*Centrabl. f. Bakt.*, March, 1898) deserves to be venerated in the veterinary circle.

¹Schultz, Edwin W.: The Present Status of Viruses and Virus Diseases, *J. Am. M. A.*, 136, (Apr. 24, 1948): 1075-1080.

As long as foot-and-mouth disease vaccine is safeguarded during manufacture and tested properly before it goes into the field, there is no danger that it will spread the disease.—*Dr. B. T. Simms.*

Thyroprotein Still Experimental

Evidently, the rating given to thyroprotein (iodinated casein; iodocasein, thyrolactin, *et al.*) as a utilitarian supplement to the ration of milk cows has lacked careful analysis under "field" conditions. The results of trials of Reineke and Turner's brilliant discovery, by various investigators, designed to determine its practical value in dairy farming, are not in accord as critical readers of the literature have long suspected. The question is whether the product has a place in practical dairy farming. It is in this important respect that investigators differ.

There is general agreement that thyroprotein steps up the pulse rate, the respira-

tions, the body temperature, the metabolic rate, the secretion of milk and of butterfat, and causes loss of body weight. That being the case, the intake of feed and its utilization must be correspondingly increased. Summed up, increasing the feed intake 20 per cent stepped up the milk secretion 13 per cent but, with thyroprotein added to the ration, the milk increase was 20 per cent, or 7 per cent more. The cost of the product and the trouble of giving it must be met with that (7%) increment. To Dr. L. A. Moore of the U. S. BAI, the increase is accomplished at the expense of body weight. Heart disturbances (not necessarily grave) occurred, and other abnormalities of a serious nature were observed. British investigators found that the pulse rate was increased 10.2 beat per minute, cardiac arrhythmia significantly disturbed, respiratory rate accelerated, nervousness pronounced, and digestion disordered (scouring). Ayrshires, Guernseys, and Jerseys were more responsive to its action than Holstein-Friesians.

Seath, of the Louisiana station, questions the justification of using thyroprotein in the dairy-cow ration. Baxter of England found no marked change in the composition of milk. Archibald, of the Massachusetts station, found a great variation in the individual response to its action. Hibbs, of the Ohio station, declared that more should be known of its physiologic action before recommending it as a regular constituent of cows' ration. Hart, of the Wisconsin station, writes that it caused pitiful conditions (respiratory distress) that "no cow-respecting dairyman would wish to see." Van Landingham of West Virginia emphasized that it is a disturbing factor in testing programs. Hart, Booth, and Elvehjem of Wisconsin found that while increased production of milk and butterfat were obtained, cows lost weight despite increased feed allowance. The Dairy Science Association discourages its general use.

As a matter of fact, all things considered, thyroprotein will not transform a poor cow into a good one and, like all drugs, it is something that ought to be prescribed only when needed to stimulate a lazy thyroid—a manifestly difficult state to detect.

Hairy vetch has been shown to have a toxic effect on chickens.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Icteric Foals

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DURING the past twenty-seven years, more than 900 dead foals were examined by members of this department.* In 21 per cent of these specimens, the cause of death was not established. Within this group were placed the so-called jaundiced or icteric foals. They were bacteriologically negative upon culture and the exact cause of death was not determined. Records of the past seven years show 17 cases of icteric foals which terminated in death. That is an average of 2 to 3 a year; however, 5 of this total appeared in 1947. Some of these foals were the first icteric foals produced by certain mares while others constituted the second or third successive loss from a mare rebred to the same stallion.

In most instances, the history which accompanied the icteric foal upon its presentation to the laboratory indicated that it apparently was normal at birth, began to show icterus within twenty-four to forty-eight hours, and died before the fourth day after birth. Postmortem examination revealed all the characteristics associated with abnormal destruction of erythrocytes. A marked jaundice was in evidence throughout all of the tissues and organs. The blood appeared watery and pale. Erythrocyte counts of 2,000,000 to 3,000,000/cmm. of blood established the presence of a severe anemia in sick foals. Although there was no observed increase in immature forms of red cells in the circulating blood, studies of the bone marrow of dead foals pointed to an increased regeneration of erythrocytes.

The investigation reported in this paper is in connection with a project of the Kentucky Agricultural Experiment Station and is published by permission of the director.

*From the Department of Animal Pathology, Kentucky Agricultural Experiment Station, Lexington.

Dimock, Edwards, and Bruner¹ suggested a similarity between this condition found in icteric foals and that observed in erythroblastosis fetalis in human infants. They believed it to be possible for horses to carry a red blood cell factor comparable to the Rh factor in man. Not all foals showing evidence of jaundice at birth or shortly thereafter die, and it is apparent that all cases of icterus are not due to the same cause. It is also quite possible that certain pregnancies which might result in icteric foals terminate, instead, in abortion and that the relationship between the cause of death in the fetus and in the icteric foal goes unrecognized.

In the red blood cells of man are two substances designated A and B. Four well-defined blood groups are based upon their presence or absence. According to Schermer,² the erythrocytes of horses carry combinations of elements C, D, E, and F in addition to A or B. These additional factors permit the formation of a large number of blood groups in horses which frequently are hard to demonstrate due to the presence of only small amounts of these substances. Since blood groups of horses are not so well established, nor so easily determined as those in man (Szymanowski³ and Schermer²), the finding of a blood cell factor causing the loss of fetuses or foals presents a complex problem. First efforts were directed toward a study of blood from mares and stallions which had produced icteric foals and from foals which had survived attacks of jaundice.

In comparing the blood specimens of 6 mares and 6 stallions which produced icteric foals in 1947, it was established in each case that the serum of the mare agglutinated the erythrocytes of the stallion and that the serum of the stallion did not ag-

glutinate the cells of the mare. Red blood cells obtained from a 3-month-old foal, which shortly after birth developed and recovered from a severe case of jaundice, were agglutinated by the serum of its dam but not by the serum of its sire. It is possible that the agglutination obtained in these tests was due to blood groups and not to the presence of an Rh-like factor in the erythrocytes of the stallions and the colt. The fact that none of the serums obtained from 40 other Thoroughbred mares would agglutinate the red blood cells of these stallions indicates the involvement of more than just naturally occurring iso-agglutinins. Red cells from these stallions were not agglutinated by Rh antiserum. Accordingly, their erythrocytes do not carry the Rh factor, although they might contain a similar substance. In testing the erythrocytes of 80 horses with the serum of the 6 mares which had produced icteric foals, about 75 per cent were observed to react. Since there was no complete agreement in the reactions of these 6 serums upon the 80 samples of red blood cells tested, it is necessary to devise tests whereby agglutination due to iso-agglutinins can be ruled out. Then it might be possible to detect mares that could bear icteric foals and stallions that could sire such foals. There is also the possibility that mares which have become immunized to certain erythrocytes through blood transfusions may give off sufficient antibodies in their milk to start an abnormal red cell destruction in some foals which apparently were normal at birth.

In caring for the offspring of a mare which has produced icteric foals, it should be remembered that a transfusion from the dam may prove to be fatal for the foal. Before any transfusion is given to that type of foal, cross matching tests should be completed and the blood of the selected donor should neither agglutinate nor be agglutinated by the recipient's blood. In the past, some icteric foals were saved through administration of several transfusions of blood from the proper donor. Furthermore, the milk of such a dam may prove to be harmful and it is suggested that the newborn foal should not be allowed to nurse its dam, but should be placed with another mare.

SUMMARY

Seventeen cases of icteric foals were studied during the past seven years. Recently, blood samples were studied from the individuals involved in six matings. They had produced 6 icteric foals during the spring of 1947. Only one of these foals survived. In each case the red blood cells of the stallion were agglutinated by the serum of the mare. The reverse tests showed no reaction. Blood from the foal which survived icterus reacted like that of its sire. Findings at present would indicate that mating mares which have brought forth icteric foals with stallions whose erythrocytes they agglutinate may result in another icteric foal.

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- ²Schermer, S.: Die Blutgruppen der Haustiere. *Twelfth Internat. Vet. Cong.*, 3, (1934):536-546.
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Breeding of Mares

A change in environment changes the estrual cycle of mares. Therefore, when they are to be bred in a locality other than that to which they are accustomed, it is advisable to ship them as early in the season as possible.

While a mare is in heat, the vaginal secretions and normal congestion of the genitals may conceal an infection. When examinations for pregnancy are made earlier than sixty days, some mares may be found in foal, only to prove empty when examined about sixty days after the last cover. In such cases, abortion has likely occurred unobserved.

Equine twins are certainly not a blessing. Someone has recently suggested a way to cause twinning. Finding a way to prevent it would be more beneficial to the horse industry.—*Major B. F. Trum, V.C., in The Blood-Horse (March 20, 1948).*

Frogs Used for Pregnancy Test.—Ohio State University scientists report that the male frog, *Rana pipiens*, has high diagnostic value as a test animal for early pregnancy. It is easily obtainable in the United States, is not killed for the test, and can be used over and over again.—*Science, Feb. 20, 1948.*

Intestinal Strangulation in a Bitch

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On Dec. 14, 1947, a mixed Beagle bitch about 2 years of age was presented at the hospital for treatment. The unusual factor in this case was the absence of symptoms suggesting a dangerous condition.

The subject was a stray that had been taken in by the present owner about a year

and showed pain on palpation of the abdomen. Food was withheld and a dose of mineral oil given. The animal made an uneventful recovery.

On Dec. 14, 1947, the animal was presented at the hospital with the following history: The dog had been ailing for three days,—exhibited no pep, slept most of the time, and ate very little. There was no satisfactory evidence of fecal elimination. The animal had urinated, but the amount or character was not noted.

Upon clinical examination, the following factors were noted: The animal was quiet and did not object to handling; temperature, 101.2 F.; the lungs were normal on auscultation; the heart beat seemed to be of normal force and frequency; the optic, buccal, and nasal mucous membranes were normal; the buccal cavity presented no unusual features as to odor, color, teeth, or tongue; the general appearance was one of slight emaciation, good coat, ribs noticeable; in the abdominal region no unusual conformation was detected, intestines were empty but normal peristalsis seemed to exist; all other palpable organs seemed to be normal.

Because two tapeworm segments were noted in the perianal region, a fecal examination was in order and the animal was hospitalized for observation. The first day, the patient was quiet, temperature normal, had no fecal elimination, and ate very little.

On the second day, no excreta was observed in the cage, but the animal ate a little food. The temperature was normal. The general physical and nervous condition was the same.

On the morning of the third day, a marked change was noted. There was a decided "tucked-up" appearance and a small degree of dehydration. There was a marked arching of the spinal column in the posterior thoracic and lumbar regions. Upon examination of the cage, a small amount of very fluid fecal material was observed. The animal had eaten a little food; its disposition was excellent and the temperature was normal—101 F.

On palpation of the abdominal region, a large mass was found just posterior to the last rib. This mass extended forward until



Fig. 1—Intestinal strangulation in a bitch.

before. In May, 1946, the animal was taken to a veterinarian for an oöphorohysterectomy. A streak was present where normally one would expect to see a cicatrix resulting from such an operation. However, at the owner's request, a laparotomy was performed and a search for the reproductive organs was made. The ovaries, fallopian tubes, and uterus were not found, so it was assumed that the bitch had been operated upon previously. During the months of July and August, 1946, distemper immunization injections were administered. Other than these trips to the hospital, the animal had been ill only once. That one illness, which occurred in December, 1946, may have some bearing on the case. At that time, the animal exhibited anorexia for three or four days, was slightly tympanitic,

the posterior ribs prevented further palpation. The mass was only slightly movable and quite hard. The animal exhibited no pain on palpation.

Two lateral x-rays were taken of the region. Examination of the plate confirmed the presence of the mass and revealed its position and size. Upon permission from the owner, the patient was put under general anesthesia and a gastroscope passed. This procedure revealed nothing. Since no distinguishing features of the mass were revealed by the x-ray plate or the gastroscope, it was necessary to operate. The patient was prepared for surgery.

An incision was made along the median raphe, 2 in. anterior to the umbilicus to 3 in. posterior to the same mark. The tissue down to, and including, the peritoneum was normal. When the abdominal viscera were exposed, the first impression gained was that the intestines were quite empty, but upon examination it was found that the intestines in the anterior part of the abdominal cavity were inflated and hemorrhagic. By separation of the various loops, it was observed that two distinct loops of the duodenum were strangulated by the mesentery. Two mesenteric rents¹ were located. It was observed that the edges of these rents were well organized and presented the appearance of heavy cord about the size of an ordinary lead pencil. It was impossible to reduce the strangulation manually by passing the loops through the mesenteric rents.

Because it seemed necessary to reduce the strangulated condition as rapidly as possible and in the most practical manner, a section of the cordlike edge of the mesenteric rent was selected and ligated in two places. The cord was then severed between the two ligatures. This procedure brought immediate relief to a section of the bowel.

The second strangulated area was similar in structure to the first, and the same procedure was followed. With the severance of the edge of the second rent, the gas contained in the intestine was equally distributed throughout its length and it assumed a somewhat normal size. Normal physiologic saline solution (400 cc.) was administered subcutaneously.

The next morning the animal was up and showed a desire to eat. Solid foods were

withheld, but milk and broth were given and accepted readily. In the afternoon, a pound of horse meat was consumed. The patient also had a bowel movement that was normal but small. A somewhat soft diet was fed for the next three days, and then a regular diet.

Within twenty-four hours after the operation, the animal appeared normal and the recovery was complete and uncomplicated. It was hospitalized for one more week and discharged as a normal, healthy animal. Since its discharge, the owner has informed us that the dog seems perfectly normal.

Diaphragmatic Rupture in a Mare

I was called to assist in the delivery of a 17-year-old mare, a trotter. The examination revealed a temperature of 98 F., a cold sweat over the surface of the body, icteric nictitans membranes, and congestion in the vaginal and uterine mucosae. The heart was strong and a little rapid. The mare showed evidence of colic by turning her head to the flank, an anxious expression, and repeatedly lying down and getting up.

The delivery was complicated by reason of the fetal membranes remaining intact and a lateral twist of the foal's neck. Presentation was anterior and the front legs were in the pelvic canal. Four hours after delivery of a living colt, the mare died. On postmortem examination, a rupture of the diaphragm was found in the dorsal right quarter. Through it, a herniation of about 12 ft. of small intestine was found. The pressure of the engorged, hemorrhagic bowel had compressed the lungs severely. The intestine posterior to the herniation showed a similar condition for a length of 10 ft. The stomach was dilated but otherwise normal. Reddish, serous fluids were found in the thoracic and abdominal cavities. The diaphragm showed evidence of severe strain—the longitudinal tendinous fibers had separated almost throughout from the contiguous fibers.

A week prior to delivery, the mare had been turned out on pasture for the first time after a winter of confinement, and she had "run like the wind" for some time. This may have been the cause for the hernia.—*J. Abramson, D.V.M., Milford, Del.*

¹Schnelle, G. B.: Radiology in Canine Practice. North Am. Vet., 26, (1945):281-283.

The Soviet "Cold Method" of Raising Cows

Soviet scientists claim to have broken world records in extending the life of high-producing cows to 15 years and over, according to a McGraw-Hill dispatch from Moscow (*Food Ind.*, Feb., 1948).

The breeding project was organized by Dr. Stanislav Shteiman, a veterinarian, about twenty years ago and now includes more than 30 cows. One of the cows is 19 years old, has given birth to 15 calves, and has yielded 98,225 liters of milk. Two others have produced 94,800 and 92,700 liters, respectively. No figures are given on the rest.

Calves are all raised by the so-called cold method—in unheated barns where the temperature is 5 F. The air is dry, there is plenty of bedding, and the calves are equipped with ear muffs to keep their ears from freezing. The best breeders in Dr. Shteiman's herd have been sent to collective and state farms in several parts of the Soviet Union, and the "cold method" has been adopted on a number of farms.

While results of the Russian project are impressive and of unquestionable scientific importance, the reported claim to having "broken world records" may be questioned by American breeders. The case of Ionia Ormsby Queen (Michigan State Hospital herd), who died nearing 18 years of age, could be cited as an example. During her lifetime, she produced 267,690.8 lb. of milk, which adds up to considerably more on the conversion table than the output of the top

"cold method" producer, and her nearly sixteen years of actual milk production (4,790 production days) puts Ionia Ormsby Queen solidly in the "15 years and over" category.

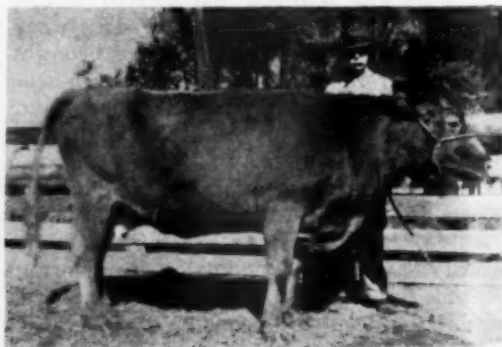
Metopryl, New Anesthetic

For the first time in a century of ether's unchallenged supremacy, a drug has been found that may be destined to replace it (*Current Digest*, Feb., 1948). It is n-propyl methyl ether, also called metopryl. Discovered by Krantz and associates at the University of Maryland medical school, it is the ninth new anesthetic agent pioneered by this group during the past seven years.

The qualities which appear to give metopryl a claim to superiority over ether are: (1) produces profound relaxation even in lighter anesthetic planes,—the closest approach to spinal anesthesia obtained with an ethereal agent; (2) less nausea and vomiting; (3) produces respiration similar to that with cyclopropane; (4) less irritating than ether, it can be used without nitrous oxide, cyclopropane, or pentothal for induction; (5) patients react and awaken more rapidly; (6) intubation is less difficult and quicker than under ether.

Incubation Period of the Eggs of Farm Fowl.—Hen, 21 days; turkey, 28 days; duck, 28 days; Muscovy duck, 33 to 35 days; goose, 28 to 32 days; guinea, 26 to 28 days; pheasant, 21 to 24 days; pigeon, 18 to 20 days; peafowl, 28 days.

Cow, 35 Years Old, Due to Calve in June



This 35-year-old cow is a cross between a Jersey and a Shorthorn and is expected to calve in June, 1948. She is shown at the left in October, 1946, with her thirty-first calf. The picture at the right was taken in October, 1947. According to Dr. Victor B. Beat, New Berlin, Ill., her owner, William Coons of New Berlin, has authentic proof of her age, in whose possession she has been these many years.

CLINICAL DATA

Clinical Notes

Atabrine, administered continuously in drinking water for three and a half months, failed to protect turkey poults against *Histomonas meleagridis* infection.

University of Wisconsin studies have demonstrated that coccidia will not develop in fermenting poultry manure, as they get too little oxygen.

Red blood cell counts of Thoroughbred and Arabian horses are considerably higher than those of other breeds, and the white cell count of the Thoroughbred is higher.—*Cornell Vet.*, Oct., 1947.

Insect Resistance to DDT.—By selective breeding, federal entomologists have developed strains of flies that are relatively resistant to DDT and other insecticides. Studies reported in *Science* (March 12, 1948) suggest that such resistant strains may likewise develop under natural conditions.

Protection Against Swine Erysipelas.—Inoculations of porcine gamma globulin, obtained from pooled samples of about 400 normal pigs, protected mice against infection with *Erysipelothrix rhusiopathiae* for at least fourteen days. Cameron, of the University of California (*Cornell Vet.*, Oct., 1947), regards the result as sufficiently encouraging to warrant advanced experiments with swine and other susceptible species.

Pullorum Disease in Turkeys.—Although the rate of infection with pullorum disease is about the same among exposed turkeys as among chickens, most surviving turkeys throw off the infection, with resultant disappearance of agglutinins, whereas a large proportion of chickens remain as carriers.—*Dr. R. Guatkin, Animal Diseases Research Institute, Hull, Que.*

The most active analgesic which does not cause smooth muscle spasm is pethidine (demerol). In fact, it relaxes the spasm.

Streptomycin in Brucellosis.—Six people infected with *Brucella abortus* or *Br. suis* recovered following treatment with 20 to 51 Gm. of streptomycin, given in daily doses of 5 Gm.—*Abstr., M. Times, Feb., 1948.* Huddleson's blood-sulfa therapy is also reportedly successful in checking the course of the infection in man.

Infectious Canine Hepatitis

After the May JOURNAL had gone to press, Dr. D. L. Coffin, Angell Memorial Hospital, Boston, requested that the following addition be made to his paper titled "The Pathology of So-Called Acute Tonsillitis of Dogs in Relation to Contagious Canine Hepatitis (Rubarth) (*J.A.V.M.A.*, May, 1948:355): "Since my presentation of the paper on acute tonsillitis of dogs before the New York City Veterinary Medical Association on Oct. 1, 1947, a case of infectious canine hepatitis has been reported by R. E. Storm and W. H. Riser (*see North Am. Vet.*, 28, (Nov., 1947):751).

Photosensitized Keratitis in Calves Due to Phenothiazine

A series of reports from New Zealand (*Aust. Vet. J.*, Dec., 1947) emphasizes the danger that photosensitized keratitis may develop following treatment of calves with usual therapeutic doses of phenothiazine. Phenothiazine sulfoxide is the photodynamic agent, with the condition developing incident to the action of light on the cornea. Keeping calves out of the sun the day after treatment, rather than sheltering them the day treatment is given, is viewed as the best preventive measure.

A Chronic Dermatitis of Cattle Due to Oil Applications

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IN THE FALL of 1945, the South Dakota Livestock Sanitary Board investigated a chronic skin disease affecting several animals in a herd of purebred Shorthorn cattle. On some of the affected cattle, the area of skin irritation was confined to the dorsal surface from the poll to the tail head and extending down the sides some 15 to 18 in. from the midline. On others the skin of the back was normal, but areas on the neck and around the tail head were thickened, due to a surface layer of dry flaky crusts which were matted in the hair. In places the encrusted layer was fully $\frac{1}{2}$ in. deep. On the neck and shoulders there were deep furrows through the crusts resulting from the greater movement of the skin in those regions. There was little initial loss of hair. The skin was stiff, nonpliable, and hypersensitive when grasped in the hand. None of the animals were rubbing excessively.

The owner stated that the first appearance of skin injury to calves in the herd was at about 1 year of age. Calves sold from the herd did not develop the condition in other herds. Although some of the cattle were at times pastured with cattle of another herd on a neighboring farm, there was no spread to the other cattle.

Scrapings from affected areas of the skin were negative for external parasites. Four blood samples from affected animals which were analyzed for ascorbic acid yielded 0.113 mg., 0.211 mg., 0.23 mg., and 0.249 mg./100 cc. of blood.*

Another investigation was made at the farm two months later (Jan., 1946) when additional history was obtained. It was then determined that a skin irritation had appeared in the herd about five years previously. Thinking that lice or other parasites were responsible, the owner had installed an automatic oiler which had been in service up to the time of the investiga-

tion. In addition to "medicated dip oil" applied through the automatic machine, occasional applications of the oil were made by hand to crusted areas of the skin

TABLE 1—Blood Analyses of Cattle With Dermatitis*

	Na	K	Carotene	Vitamin A	Vitamin C
1	300	15	0.0442	0.022	0.333
2	300	13	0.0462	0.0186	0.371
3	300	17	0.0564	0.0245	0.296
4	300	13	0.0296	0.0173	0.371

*The values given are in mg./100 cc. of blood.

of affected animals in an attempt to hasten recovery. The liberal use of oil in this way softened the crusts so that they could

TABLE 2—Dates of Applications of Oils and Reactions Produced on the Skin of a Yearling Hereford

Oil	1	2	3	4	5	6	7	8	9
Skin area	l.s.	l.r.	l.h.	r.h.	r.f.	r.r.2	r.s.	l.n.	r.n.
3-27	*	*	*	*	*		*		
4-3	†	*	*	*	*		†	*	
4-11	†	*	*	†	*		†	*	
4-18	†	*	*	†	*		†	*	
4-25	†	*	*	*	*		§	*	
5-2	*	*	*	*	*		§	†	*
5-9	*	*	*	*	*		§	†	*
5-13	*	*	*	†	†		§	†	*
5-16	*	*	*	†	*		§	†	*
5-20	*	*	*	†	†		§	†	*
5-23	*	*	†	†	†		§	†	†
5-28	*	*	*	†	†		§	†	*
6-18	†	†	†	†	†		§	§	†

*Application of oil. †Loose epithelial scales in hair. ‡Adherent crust on skin surface with loose scales in hair. §Thick crust, sparseness of hair, furrows through crusts.

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Approved for publication by the director of the South Dakota Agricultural Experiment Station.

*These and other chemical determinations reported in this paper were made by Experiment Station Chemistry Department.

be scraped away, but relief was only temporary.

Additional skin scrapings were collected at this visit. These were negative for lice, mites, and ringworm fungi. By

TABLE 3—Dates of Applications of Oils and Reactions Produced on the Skin of a Yearling Shorthorn

Oil	1	2	3	4	5	6	7	8	9
Skin area	l.s.	l.r.	l.h.	r.h.	r.r.	r.r.2	r.s.	l.n.	r.n.
3-27	*	*	*	*	*		*		
4-3	†						†		
4-11	†	*	*	*	*		*	*	
4-18	†	*	*	*	*		‡	*	*
4-25	†	*	*	*	*		§	*	*
5-2	†	*	*	*	*		§	*	*
5-9	‡	*	*	*	*		§	*	*
5-13	†	*	*	*	*		†	§	†
5-16		*	*	*	*		‡	§	†
5-20		*	*	*	*		‡	§	†
5-23	‡	*	*	*	*		‡	§	†
5-28		*	*	*	*		‡	§	†
6-18	‡					‡	§	‡	†

*Application of oil. †Loose epithelial scales in hair. ‡Adherent crust on skin surface with loose scales in hair. §Thick crust, sparseness of hair, furrows through crusts.

biopsy, skin was secured for microscopic examination. This examination revealed surprisingly little reaction in the layers of the skin. There were, in some fields, small foci of cellular infiltration consisting of mononuclear and eosinophilic cells. The accumulated surface layer of crusts consisted of keratinized epithelium.

Blood samples were collected from 4 affected animals which were analyzed for sodium, potassium, carotene, vitamin A, and ascorbic acid. The results of these analyses were within the normal range (table 1).

While this herd was under investigation, 2 Shorthorn bulls from another herd were submitted to a local sales agency. The skin

of these bulls had the same general appearance as was observed in the purebred Shorthorn herd. The skin over the neck, shoulders, back, and sides was covered with a thick crust, in places more than $\frac{1}{2}$ in. deep. Scrapings from these animals were negative for ringworm fungi and mites, but one specimen revealed biting lice (*Bovicola bovis*). Inquiry of the owner revealed that tractor crankcase drainings had been liberally applied to the skin of the bulls three or four months previously.

Additional cases of a similar nature and with similar histories have been reported



Fig. 1—Yearling Hereford calf with dermatitis resulting from oil applications.

each winter and spring. Some of these have been investigated. One involved a herd of 30 cattle of Shorthorn and Hereford breeds in which about half of the animals were affected. Both young and mature animals were included among those showing incrustation over the skin of the neck, shoulders, and back (fig. 1). History revealed that the owner had been applying a commercial "mange oil." He stated that the oil loosened the crusts so that they could be scraped away, but another layer would form within a few days.

Another case involved a herd of purebred Aberdeen-Angus cattle. The owner had purchased an oil designated as a "medicated dip oil" and applied it to several bulls during the latter part of the summer. As

soon as he had noticed injury to the skin with accumulations of scales, applications were discontinued. Effects of the skin injury were still evident eight months later.

In still another herd, 6 cows were showing a dermatosis similar to that described. They had access to an automatic oiler in the lot at all times, while other cattle in the herd not so affected had had access to the oiler only during a short period of stormy weather. Scrapings again were negative for parasites and ringworm fungi. Some improvement was noted in the cows within a month after removal of the oil from the oiler.

EXPERIMENTAL TRIALS

When the histories obtained indicated that applications of oils to the skin were the most probable cause of the dermatosis, a trial using one of the oils in question was made at the laboratory. The oil was applied to the ilio-sacral region of a yearling Hereford calf by rubbing into the hair and skin surface with a gauze pad. A second application to the same area was made eight days later. When examined on the seventeenth day, large flaky scales were found over the skin surface and in the hair over the area treated. Two additional oil applications were made on the seventeenth and forty-fifth days. These were followed by thickening of the skin and increase in epithelial scales. No evidence of injury remained at the end of the third month when again examined.

In order to observe more carefully the effects of oils on the skin of cattle and the rapidity and degree of skin injury resulting from their application, other trials were made.

Three yearling steers, a Hereford, a Shorthorn, and an Aberdeen-Angus, were used for trials starting March 27, 1947. In all, nine oils were tested by repeated application to areas of skin approximately 6 in. square, on each of the three breeds of cattle. Six of the oils were commercial oils recommended for application to the skin for the control of external parasites. Four of these six samples were secured from owners who had experienced trouble with dermatosis in their herds. The other three samples were lubricating oils, one of which was used oil drained from the crankcase of a car. The samples are listed numerically with a brief description of each, and the areas to which they were applied.

1) Lubricating oil, S.A.E. 20, applied to left shoulder (l.s.).

2) Lubricating oil, S.A.E. 40, applied to left anterior rib section (l.r.).

3) Crankcase drainings, applied to left hip (l.h.).

4) Medicated dip oil, sold for use in automatic oilers. This oil was suspected of caus-

ing the dermatosis observed in the purebred Shorthorn herd first described. Applied to right hip (r.h.).

5) A mangle oil claimed to contain carbon disulfide and sulfur in petroleum hydrocarbon oil. The distributors of this oil recommended its use more particularly for hogs. Applied to midrib section on right side (r.r.).

6) A mangle oil, low viscosity. This oil was used by one of the owners who reported trouble. Applied to anterior rib section on right side (r.r.2).

7) A mangle oil similar in its characteristics to No. 6, but distributed by a different company. This oil had also been used in a herd with bad results. Applied to right shoulder (r.s.).

8) A so-called medicated dip oil. This sample was secured from the owner of the purebred Aberdeen-Angus bulls previously mentioned. There is reason to believe that this and the No. 4 oils were distributed by the same company. Applied to left side of neck (l.n.).

9) An oil spray. This oil is widely sold and used in the range area for spraying cattle

TABLE 4—Dates of Applications of Oils and Reactions Produced on the Skin of a Yearling Aberdeen-Angus

Oil	1	2	3	4	5	6	7	8	9
Skin area	l.s.	l.r.	l.h.	r.h.	r.r.	r.r.2	r.s.	l.n.	r.n.
3-27	*	*	*	*	*		*		
4-3	*	*	*	*	*		†	*	
4-11	*	*	*	*	*		†	*	*
4-18	*	*	*	*	*		†	*	*
4-25	*	*	*	*	*		‡	*	*
5-2	*	*	*	*	*		‡	*	*
5-9	*	*	*	*	*		‡	*	*
5-13	*	*	*	*	*		‡	*	*
5-16	*	*	*	†	*	†	‡	†	*
5-20	*	*	*	†	*	†	‡	‡	*
5-23	*	*	*	†	*	†	‡	‡	†
5-28	†	*	*	*	†	*	‡	‡	*
6-18	†		‡	‡	‡	‡	‡		

*Application of oil. †Loose epithelial scales in hair. ‡Adherent crust on skin surface with loose scales in hair. §Thick crust, sparseness of hair, furrows through crusts.

and hogs. Applied to the right side of the neck (r.n.).

The oils were applied by soaking a pledget of absorbent cotton with each sample and rubbing on the areas designated, sufficient to wet the hair and skin. The hair was not clipped from the treated areas. During the period of the trials, the treated steers were fed in an open shed with free access to an outside lot. They were not confined to shade after any of the applications. Tables 2, 3, and 4 contain data pertaining to the Hereford, Shorthorn, and Aberdeen-Angus respectively.

The lighter lubricating oil, No. 1, produced slight to moderate reaction on the Hereford and Shorthorn, but not on the Aberdeen-Angus until applications had been discontinued. The heavier lubricating oil, No. 2, and the crankcase drainings, No. 3, produced no detectable reaction except a slight slipping of the hair noted on the Hereford after applications of the oils had been discontinued. The No. 5 and No. 9 samples of commercial oils resulted in mild

It may be pointed out further that the reactions produced by the oils were just as severe, if not actually increased in degree, three weeks after all applications had been discontinued. It is possible that exposure to more direct sunlight in this three week interval may have intensified the reaction. During much of the two-month period, when applications were being made at weekly or biweekly intervals, cloudy and rainy weather prevailed.

There is also some indication of differences in the susceptibility of cattle to the effects of oils on the skin. The Aberdeen-Angus exhibited a lesser degree of reaction to the more potent oils and practically no reaction to the lubricating oils.

DISCUSSION

In the first herd investigated, some similarity to the dermatosis in calves reported by Cole, Rasmussen, and Thorp¹ was at



Fig. 2—Area of dermatosis on Shorthorn after six weekly applications of oil No. 7.

reactions, but only after several applications had been made. The remaining four samples, all of which were suspected of causing dermatosis in field use, resulted in more definite skin injury. With the No. 4 sample, the skins of the Shorthorn and Aberdeen-Angus were less severely injured than the Hereford. As noted previously, the No. 4 and No. 8 samples were thought to be of the same origin. It would appear then that the area of application had a bearing on the degree of reaction. More injury resulted from the No. 8 oil applied to the neck area than from the No. 4 sample on the thicker skin of the hip.

The thinner oils, No. 6 and No. 7, were quick to produce detectable injury, and the skin reactions were the most severe, considering that the number of applications was less than with any of the other oils used in the trials (fig. 2 and 3).

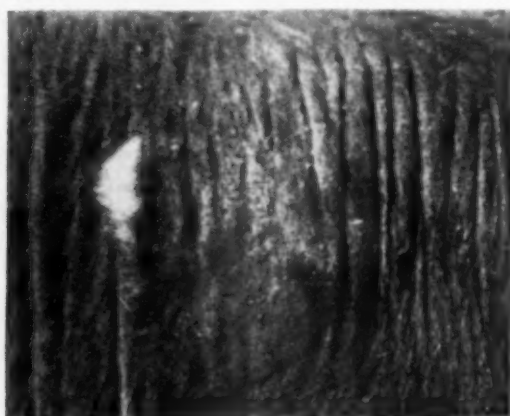


Fig. 3—Area of dermatosis on Aberdeen-Angus after six weekly applications of oil No. 7.

first suspected. They found low values for ascorbic acid in the blood and concluded that this deficiency was in some way concerned in causing the dermatosis. Our analyses gave borderline or low-normal values for ascorbic acid on initial tests, but later results were well within the normal range. Ascorbic acid was not administered as a therapeutic measure in any of the herds investigated.

Reddin and Stever² reported an allergic contact dermatitis in the horse which, by patch tests, was shown to result from a mixture of sulfonated neat's-foot oil and "wool yellow dye." The skin lesion as described by these authors is similar, in many respects, to that observed on these cattle.

They reported thickening of the skin, denudation of the hair coat, and desquamation. Biopsy of these areas revealed an inflammatory reaction with eosinophilic infiltration.

Veterinarians generally recognize that oils may be irritating and injurious to the skin of cattle. Hutyra, Marek, and Manninger,³ in discussing eczema, state that chemical substances which exercise a solvent or irritant action upon the epidermis are not infrequently causes. They mention specifically mercury, mustard oil, croton oil, tartar emetic, iodine, petroleum, tar, and carbolic acid. Again in the discussion of dermatitis, they state that most remedies for mange, especially crude naphtha and other mineral oils, cause inflammation of the skin. Udall⁴ states that irritant disinfectants, such as are sometimes used for lice on cattle, cause loss of hair, moisture, and dandruff. The Bureau of Animal Industry⁵ calls attention to possible injurious effects of petroleum oils on the skin of cattle when used in the treatment of cattle lice and scab. In another publication,⁶ they caution that when cattle are dipped in any of the crude petroleum dips, a cool shady place should be provided where they may be quiet and protected from the sun for several days. They further advise against these dips in cold weather.

The type of dermatosis encountered as a result of oil damage presents a problem of differential diagnosis for the practicing veterinarian and those engaged in regulatory investigational work. The fact that lice or ringworm lesions were present to prompt the owner to apply the various preparations may lead to acceptance of these parasites as causes of the extensive skin damage. Yet, except for a few biting lice in one instance and ringworm lesions in another, no biologic forms were present which would account for persistent skin lesions. In at least two herds investigated, the owners had suspected cattle scab. There was, however, absence of excessive rubbing or scratching and much less loss of hair than is observed with cattle scab involving such extensive skin areas. Neither was there any spread to other animals by contact.

Oil preparations such as were encountered in these investigations are widely advertised and sold through the range area

for the control of external parasites. The publicity given in recent years to the control of lice, grubs, and flies has no doubt been a stimulus for the sale of some preparations which are not only of questionable value in parasite control but are actually harmful to the skin of cattle. One might expect the harmful effects to be encountered more frequently when repeated application is made or permitted. The presence of dermatosis in cattle with a history of previous applications of oily preparations should lead one to suspect that the oil is responsible.

SUMMARY

A report is given of a chronic dermatosis occurring in several herds of cattle resulting from applications of oils. Experimental trials with several commercial oils were carried out and lend further evidence of their harmful nature. The significance of this condition in the differential diagnosis of several skin diseases is discussed.

Recognition is hereby made of the assistance and coöperation of the following veterinarians who made this report possible: Drs. R. A. Sawyer, South Dakota Livestock Sanitary Board; M. M. Davis, U. S. BAI; A. B. Hoerlein, Veterinary Department, South Dakota State College, resigned.

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Dry Gangrene from Creolin.—A cat, 8 months old, suffered from an acute toxic reaction following a bath of 2 per cent creolin to rid it of lice. The cat recovered from the acute symptoms after careful treatment for phenic acid poisoning. Sixty days later, the cat developed dry gangrene of the extremities. It lost its ears, end of its nose, and its tail, but otherwise the animal remained in excellent condition—a typical case of Raynaud's disease with gangrene.—*Abstr. from Ann. d. Méd. Vét. in Rec. d. Méd. Vét., January, 1948.*

Concurrent *Listerella Monocytogenes* and Hog Cholera Infections

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THE FIRST report of *Listerella* infection in swine was made in 1938 by Slabospits 'Kii' in Russia. He isolated from poxlike lesions in piglets an organism for which he proposed the name *Listerella suis*. Biester and Schwarte¹ reported cases of swine listerellosis characterized by an encephalitis. Cases of septicemic listerellosis of swine have since been reported. De Blicke and Jansen² described an outbreak of listerellosis in a litter of 9 pigs. Four died at 5 days of age, and *Listerella* was recovered from the heart, lungs, liver, spleen, and kidneys. There were pleural and pericardial effusions and necrotic foci in the livers and spleens. Kerlin and Graham³ isolated *Listerella* from the liver but not the heart or spleen of an unthrifty pig in which the only gross lesions were a number of grayish foci in the liver. No symptoms of encephalitis were observed. This paper reports a case of concurrent hog cholera and generalized *Listerella* infection.

On July 9, 1947, a 4-month-old pig was submitted to the veterinary pathology laboratory for diagnosis. The history revealed that the owner had vaccinated a group of 125 3-month-old pigs with hog cholera antiserum and virus. About 25 of the pigs had been inoculated with virus purchased from a drugstore and found subsequently to be some fifteen months beyond the expiration date marked on the label by the manufacturer. The pigs which received this outdated virus were not identified. Sickness appeared in the herd about fourteen days after vaccination. In the following two weeks, 18 pigs died and several were sick.

A diagnosis of hog cholera was made on the basis of the presence of characteristic symptoms and lesions of the disease, supported by the history described above. There was marked depression, wobbly gait, high temperature (105.8 F.), and leuco-

penia (1,000 leucocytes/cmm.). There were hemorrhages in the skeletal and visceral lymph nodes, and in the cortex and medulla of the kidney. Subserous hemorrhages were numerous in the lungs, small intestines, and gall bladder. Mucosal hemorrhages were present in the epiglottis, stomach, small and large intestines, and urinary bladder. There were also necrosis and ulceration (button ulcers) of the cecum and colon. The spleen showed no macroscopic lesions.

It is possible that the 25 pigs vaccinated with the outdated virus did not develop immunity and contracted hog cholera by contact with other pigs in the herd which had been immunized with virulent virus.

The liver, spleen, and kidney, cultured on blood agar, yielded numerous colonies of an organism having all the known characteristics of *Listerella monocytogenes*. The organism was a small (0.5μ by 1.0 to 2.0μ), motile, gram-positive, rod occurring singly and in pairs. It produced a narrow zone of incomplete hemolysis on blood agar. Acid was produced from dextrose, salicin, rhamnose, trehalose, and dextrin within twenty-four hours, and from lactose and maltose within seven days. Galactose, sucrose, xylose, mannitol, raffinose, inulin, sorbitol, and arabinose were not fermented. Neither indol nor hydrogen sulfide was formed, and nitrates were not reduced. One drop (density equivalent to McFarland nephelometer tube 10) of a saline suspension of the organism instilled into the eye of a rabbit produced conjunctivitis within six days. Subcutaneous inoculation of 0.5 cc. of a saline suspension of the organism (density equivalent to McFarland tube 10) into 2 guinea pigs caused death in 1 in eight days. The animal became somewhat emaciated before death. The organism was recovered in pure culture from the liver and heart.

SUMMARY

A case of concurrent infection with hog cholera and *Listerella monocytogenes* in a 4-month-old pig is reported. *Listerella* was

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isolated in pure culture from the liver, spleen, and kidney but was regarded as secondary to the hog cholera infection. No symptoms of encephalitis were observed.

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Calomel and Sulfathiazole Ointment in Open Joints, Puncture Wounds, and Ear Canker

A Holstein-Friesian cow was presented for treatment with a history of what was presumed to be a wire cut. There was suppuration from a cut located on the lateral side of the fetlock. The owner had been treating the cow for two months with undiluted creolin.

When seen, the fetlock was about the size of a child's head. Exploration revealed a fistula extending to the articulation, glancing off and continuing toward the sesamoids. A counter opening was made to flush out the pus with a syringe, and a piece of gauze passed through to dislodge any necrotic particles that might be present, but upon attempting to flex the joint, a large quantity of pus flowed out.

Several drugs were tried without any improvement, except that the swelling was reduced. This, however, was attributed to painting daily with iodine, using a toothbrush. The suppuration continued, however. The drugs used included sulfanilamide in oil, methylene blue in alcohol, tyrothrycin, sulfanilamide by the mouth, Fowler's solution, and, finally, Forge's solution. One month after the first treatment, there was no decrease in the suppuration.

At this time, we began to use an ointment consisting of sulfathiazole 15 per cent and calomel 30 per cent. The drug was squeezed into the wound four times at 24-hour intervals. The suppuration was completely stopped and the pain receded. The wound closed in two days and there was no recurrence.

Since that time we have used the same ointment in a variety of cases with equally good results. A mare with a puncture wound at the carpus responded in two days. A horse with an infected nail wound was treated with the ointment after cleaning the wound, and the pack was left for three days after which time there was no sign of infection. A bull with an

infection of the prepuce (mixed infection) received three treatments and recovered. Four cases of ear canker in dogs have been treated with the ointment with spectacular results.

We have treated dog bites, scratches, and many types of wounds with this ointment and find it superior to sulfonamides with urea, sulfathiazole ointment, sulfanilamide in oil, metaphen, creolin, methylene blue, iodine, or mercurochrome. It does not seem to have irritating properties and, at least judging from our field experience, seems to have greater bactericidal properties against more bacteria than most drugs used for that purpose.—*Emilio Estrada, D.V.M., Guatemala City, Guatemala, C. A.*

Benzene Hexachloride in Mange of Small Animals

A 1 per cent suspension of the gamma isomer of benzene hexachloride (BHC) in liquid paraffin promoted recovery (or "presumed" recovery) in 19 out of 21 cases of sarcoptic and demodectic mange in dogs (*Aust. Vet. J.*, Dec., 1947). Mange mites were not found in the 2 cases that did not respond and it was believed that other disease factors were involved. All of 4 cats with otodectic mange also recovered under this treatment.

Although the BHC-paraffin mixture was applied every other day for about a week, the author (M. E. Dodson) suggests that one or two treatments might have been enough, as improvement was apparent within a day or two. While recognizing the disadvantages of using paraffin on household pets, he selected this vehicle because it is inert and, therefore, allows critical evaluation of the effects of the drug itself. He did not state whether the treatment left a lingering, undesirable odor as reported for other species of animals by numerous investigators.

Dogs May Spread Salmonellosis.—About 25 types of *Salmonella* organisms have been recovered from dogs. Because most of the types recovered are pathogenic for man, dogs should be considered a potential source of *Salmonella* infection for man, in the opinion of Dr. A. H. Wolff and others of the Michigan health department. Their findings were reported in the *American Journal of Public Health* (March, 1948).

Sodium Sulfathiazole in the Treatment of Foot Rot

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AS ELSEWHERE, foot rot or infectious pododermatitis has always presented a serious problem to the farmers of New Jersey. After the publication of Dr. Forman's article,¹ the writer decided to undertake this form of intravenous medication. There were certain basic factors to be considered, since the article recommended the single injection treatment for foot rot using sodium sulfapyridine especially for Guernsey and Jersey cattle and our cattle population is mostly Holstein-Friesian. Also, the question of location came up. We were not certain whether this drug would work as well on the organism found in this region. When treatment of foot rot was begun, sodium sulfapyridine especially for Guernsey the first 50 cases this drug was abandoned since it was not readily available and the cost was high. A North Carolina veterinarian (Jen-Sal Journal, Sept.-Oct., 1946) successfully used sulfathiazole orally in 12 cases. It was decided to try sodium sulfathiazole using the same dosage as sodium sulfapyridine by the intravenous route.

My practice is located in a hilly region of New Jersey and the valleys are wet, especially during rainy weather. Thus our cases of foot rot occur chiefly during the spring, summer, and early fall. Where the soil is unusually boggy we also find an abundance of stones. In my estimation, these stones contribute to the injuries of the feet. Normally, a cow walks on the claw portion of the foot. However, where the ground is soft, the feet sink down allowing stones to get between the claws and to injure the heel pad. We are assuming that *Actinomyces necrophorus* is responsible for the subsequent infection. However, no work has actually been done to substantiate this fact. In cases where pus had gathered from fistulous tracts, several organisms such as *Streptococcus*, *Staphylococcus*, and other pyogenic organisms were identified. At any rate, it is hard to imagine that the necrophorus organism is the sole offender, even though it is believed to be the primary invader. We are satisfied that the organism or organisms in-

involved are susceptible to the sulfonamides. It is evident that these organisms are more virulent during wet weather or where the soil is wet. There is also evidence indicating that these organisms are normal inhabitants of the animal's skin, becoming pathogenic when the conditions are right.

All cases treated were described or classified as acute or chronic.

Acute Foot Rot.—These cases are indicated by (1) interdigital space involved with or without sloughing of tissue, and (2) reddening of the pad and acute pain at the heel. In these cases, the infection is beneath the skin; no visible breaks in the skin are noted. The infection may work its way into the joint cavities as far up as the carpus or tarsus. Often, the temperature ranges from 103 to 106 F., and a generalized septicemia may develop with a rapid course terminating in death or gradual emaciation with eventual death. There is loss of appetite and suppression of milk flow.

Chronic Foot Rot.—In chronic foot rot, the animal has suffered a previous attack. There is considerable exostosis, especially around the coronet. There may be numerous fistulas draining a yellow-white, thick pus. The animal is lame and doesn't like to place the foot on the ground. There is a noticeable trembling of the entire limb. Infected animals like to lie down, are not thrifty, and soon lose weight. The toes are usually spread and appear rigid as if fixed by the pathologic ossification.

DIAGNOSIS

All cases of lameness in cattle are considered foot rot until proved otherwise. This does not mean a promiscuous treatment without careful examination of the affected limb. If the animal is gentle, a wooden tongue depressor can be run between the toes. If foreign objects are present, the probe will be retarded. Occasionally, we find a sharp cinder or stone wedged in the interdigital space, and in one instance a coiled roofing nail was revealed. If the animal is fractious, it may be necessary to cast it. It is imperative to examine the interdigital space for, if foreign objects remain, intravenous treatment is worthless.

TREATMENT

When sodium sulfathiazole was first used, the drug was weighed on the laboratory scale and dissolved in sterile distilled water. This procedure was recommended by the manufacturers. In some ways this avoided waste, since the demand for this treatment was not great at first. The dosage used for all mature cattle was 2 oz. dissolved in 500 cc. of sterile distilled water. This approximated the recommended 60 Gm. of sodium sulfapyridine. In cases having considerable tissue destruction, a bandage was always applied to afford protection and to prevent further irritation and contamination of the wound. This procedure is still followed as a primary principle of good surgery. The use of injectable sulfonamides has been spectacular. In many instances, however, it is foolish to lose sight of certain surgical principles. The dressing used consisted of a 10 per cent ichthymol ointment,² to which was added 5 per cent sulfathiazole, applied to a gauze pad which in turn was held to the foot with water-resistant adhesive tape. This type of bandage will not come off until it is removed and it keeps the feet remarkably dry in all kinds of weather. When sodium sulfathiazole was first used in our practice, most cases treated were of a chronic and severe nature. It was desirable and necessary to use at least three doses of 2 oz. each, on alternate days, in order to achieve the desired results; and, in some cases bordering on fatal, six doses were used before the animal was discharged. These chronic cases took several months to show complete foot recovery. They soon showed recovery in the sense that they began to eat and were no longer lame; however, the swellings resolved slowly. In articles written about foot rot, I find no mention of acute cases, which leads me to wonder whether this is a local condition. Supportive treatment is important to these cases due to the gradual emaciation and dehydration which has taken place. The treatment of the individual would depend upon the practitioner's own method. We employ an alternative tablet consisting of arsenic, strychnine, and iron. Ruminatorics and intravenous injections of dextrose and saline are used when indicated. The animal is encouraged to drink an abundance of water to overcome the dehydration which has taken place. In animals with suppurating fistulas, the

owner is advised to bathe the affected foot with hot Epsom salt water. This simple method must not be underestimated for I have seen recoveries without any other medication and, as an adjunct to the sodium sulfathiazole injection, it is unsurpassed in placing the animal back in production. Since this method of treatment has become more popular, we find that cases only a day or two old respond more readily to a single injection of 2 oz. of sodium sulfathiazole in 500 cc. of water. If animals do not respond within twenty-four hours it is advisable to repeat the injection. In animals under 1 year of age, 1 oz. of sodium sulfathiazole in 250 cc. of sterile distilled water is used. It is interesting to note that in all 12 cases under 1 year of age which were treated, the animals were severely lame in more than one leg and, in most cases, every foot was attacked to some degree.

Sulfathiazole has been used for 5 horse cases which resembled the so-called thrush. To describe the symptoms briefly, all animals were severely lame in one foot. Four of the horses were affected in the hind foot while 1 was affected in a forefoot. The infection was always deep and located in the region of the frog. The animal was tender in the region of the coffin joint on up to the fetlock. In 1 case, a stone was wedged between the frog and the sole. However, in this case like all the others, there was considerable decay of a gummy consistency which could be readily scraped out. In all instances, there was a foul odor. Four cases received three injections of 2 oz. of sodium sulfathiazole in 500 cc. of sterile distilled water while 1 received two injections. The response was favorable and favorably received. Three of the horses were saddle horses, the other 2 were draft horses.

SUMMARY AND CONCLUSION

Sodium sulfathiazole may be used as a single injection drug for the treatment of foot rot or infectious pododermatitis in dairy cattle. In mature animals, 2 oz. in 500 cc. of sterile distilled water is the desired dosage. This may be repeated where indicated. The dosage for animals under 1 year of age is 1 oz. in 250 cc. of sterile distilled water. Sodium sulfathiazole also proved useful in the treatment of 5 horses affected with so-called thrush. Our primary object in all of these cases was to

place the animal back into production as soon as possible. In the milking cows, we found it practical and profitable to the owner to give as many as three injections. Approximately 95 per cent of the cases treated early responded to a single injection of sodium sulfathiazole. The injectable sulfonamides have proved useful in other conditions and warrant further use and interest. No toxic reactions were observed in any case treated and only 2 from 400 treated animals did not respond to treatment.

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DDT in Follicular Mange

Case 1.—Three years ago, unable to obtain rotenone, we decided to test the effect of DDT on a case of follicular mange. The subject was a 2-year-old Dachshund showing a depilated spot about 1 in. in diameter below the right ear. Scrapings were made and found positive for *Demodex folliculorum*. The depilation had been noticed by the owner for about a week.

A 2.5 per cent ointment was made with powdered DDT in vaseline and applied daily for ten days, at which time the hair was beginning to grow and scrapings were negative. As the dog was never seen again, it was impossible to know if the results were permanent.

Since the treatment of that case, we were again able to obtain a commercial preparation for follicular mange which contains rotenone and treated several cases with it. The treatment in some cases had to be carried out for more than six months, and in many cases the owners became dissatisfied, discontinued treatment, or had the dog sacrificed.

Case 2.—A 3-year-old male dog, part Spitz was presented for treatment. The owner stated that the dog had been treated for eczema for several months, but was getting worse. Clinical examination revealed a raw circle around each eye. At a distance they gave the dog the appearance of wearing spectacles. The lips were red and inflamed, and similar lesions were found near the foot pads. Scrapings from all lesions were positive for *Demodex*.

The treatment applied every third day was an ointment containing:

DDT 2.5%,
 rotenone 2.5%,
 oil of thuja 6%,
 zinc oxide 15%,
 base q.s.

It was rubbed into the raw surfaces vigorously. At the same time, 5 cc. of sterile amniotic fluid* was injected subcutaneously. Fifteen treatments were given, at the end of which time the lesions had healed and the scrapings were negative. We were unable to check-up at a later date.

Case 3.—An 8-month-old male Bloodhound was presented with a 4-in. skin lesion extending from the base of the tail toward the tip. Scrapings were positive for *Demodex*. The treatment was exactly like that of case 2, except that 20 treatments were given at two-day intervals. At that time, the lesions had disappeared and scrapings were negative. A check-up made three weeks later showed the dog had gained considerable weight and was full of pep. Scrapings were negative.

Comment.—Although the cases do not warrant any conclusions, I believe that this formula has merit. It was interesting to note that in no case were toxic symptoms observed, especially in case 2 where much of the ointment was licked off the lips. I believe also that the addition of thuja and zinc oxide helps considerably in allaying the irritation and promoting healing of raw surfaces. Caution should be used, however, in treating large areas.—*Emilio Estrada, D.V.M., Guatemala City, Guatemala, C. A.*

*Pitman Moore's placenton.

Q Fever Germs from Raw Milk?

Public health workers recently discovered rickettsial bodies of Q fever germs in raw milk from California dairy farms (*Sci. News Letter*, Feb. 21, 1948). A survey showed that 10 to 20 per cent of the dairy cows in the Los Angeles area had antibodies for Q fever in their blood serum, although they showed no symptoms of illness.

Over half of more than 100 cases of Q fever reported in California during the past year occurred in people working in or living near dairies. This led investigators to suspect raw milk as a source of the infection, but they were at a loss to explain how the germs got into the milk or how they spread from milk to people. Pasteurization destroys the Q fever organism, and most of the human victims had not consumed any raw milk.

Q Fever Transmission.—It is fairly well established that the transmission of Q fever is always associated with animals.—*Bull., M. Dept., U. S. Army.*

Purified Gelatin Solution in Canine Practice

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THE GELATIN solution* used in the cases reported "is derived from beef bone collagen which is converted to the proper physicochemical state by electro dialysis and by heat under pressure, clarified and rendered free of pyrogens."¹ To this is added the 5 per cent isotonic sodium chloride, and

ditions which forbid the use of saline. We have used it, in conjunction with other supportive treatment, in chronic and debilitating diseases.

Contraindications for the use of gelatin are being dispelled.³ With the use of a 5 to 8 per cent solution, the undesirable ac-

TABLE I

No.	Diagnosis	Amount administered	Frequency	Results
1	Leptospirosis	300 cc.	Once	Recovered.
2	Leptospirosis	100 cc.	Once	Died after a week of treatment, when it was felt dog was on way to recovery.*
3	Chronic secondary infection following distemper	175 cc. 100 cc.	Once Once	Temporary improvement. Eventual euthanasia. Sick one month.
4	Same	100 cc.	Twice	Died.
5	Same	100 cc.	Once	Recovered. This dog had had distemper fits.
6	Same	125 cc.	3 days	Temporary improvement. Died six days later. Sick six weeks.
7	Same	200 cc.	Once	Temporary improvement. Died three days later. Sick eight weeks. Maintained on i.v. last week.
8	Same and chorea	100 cc.	3 days	Died three days later.
9	Same and posterior weakness	100 cc.	3 days	Became much better and eventually recovered.
10	Shock following auto injuries	375 cc.	Once	Better before i.v. was finished.
11	Same	50 cc.	Once	Died during i.v.
12	Same	150 cc.	Once	Was nearly comatose when i.v. was started. Became much better before removed from table.

*Dr. Davidson¹ suggested that on "quite limited necropsy data" this death might have been due to acute bacterial endocarditis.

the pH is adjusted so as to range between 7.2 to 7.4.

If stored much below room temperature this solution tends to jell. It must then be warmed to restore its fluid state which it will retain unless again chilled.

Hopping² reported on many of the uses of gelatin solution in veterinary practice. It is, of course, known best for its ability to raise blood pressure and restore blood volume in shock and hemorrhage. Another suggested usage may be in nephritic con-

ditions of depressing hemoglobin and plasma protein production are not seen. Furthermore, these same authors found that the fears of arterial lesions were unfounded when a 5 to 8 per cent solution was used.

Table 1 outlines the cases in which we have used gelatin solution.

From these cases, it can be seen that gelatin solution can help in debilitating diseases. It is especially applicable in leptospirosis where saline is contraindicated. In most of the chronically sick dogs, gelatin solution exerted a temporary benefit and in some cases we felt that it started

*Purified gelatin in isotonic solution of sodium chloride. Furnished by The Upjohn Company, Kalamazoo, Mich.

TABLE I—Continued

No.	Diagnosis	Amount administered	Frequency	Results
13	Internal bleeding from auto injuries	175 cc.	Once	Recovered.
14	Same	200 cc.	Once	Recovered.
15	Shock from internal injuries due to auto accident.....	300 cc.	Once	Died four hours later. This was a delayed shock as it occurred three days following the accident.
16	Same	100 cc.	Once	Died while receiving i.v. Dog hit two hours before admitted to hospital.
17	Shock and coma following auto injuries	300 cc. 200 cc.	Once Once	Recovered from shock. Still comatose next day. Eventually decided this dog had edema around spinal cord due to accident.
18	Hematoma following auto injury	200 cc.	Once	Regained color. Had large hematoma on side — estimated contents 300-400 cc.
19	Pyometritis	375 cc.	During operation	Very good.
20	Pyometritis with surgical shock	150 cc.	Following operation	Temporary improvement. Died two hours later.
21	Pyometritis with anesthetic shock	400 cc.	During and following operation	Died sixteen hours later.

the dog toward recovery. It should be pointed out that most of these distemper cases were extremely difficult, and the solution was used along with other supportive treatment.

In the auto cases, the use of gelatin solution was most gratifying. Some would have been lost with the use of saline. The two deaths due to internal injuries do not detract from the use of the solution. Shock is still an important factor in these cases and, if the injuries are not too severe, counteracting the shock may save a patient.

Both cases 20 and 21, showing surgical shock, were extremely "deep" cases of shock. One, 20, showed a temporary improvement but lapsed immediately. Case 20 had been sick three weeks. The uterus removed was heavier than the dog. The gelatin solution helped, but the bitch became so restless that the i.v. had to be discontinued. This was a case in which an operation would probably result in death, and, if not admitted to surgery, the animal would certainly have died.

Case 19 may indicate a good usage of gelatin solution. The patient was 11 years old, had been noticeably sick ten days, was slightly dehydrated, and had been vomiting. The gelatin given through the same

hypodermic needle as used for the anesthetic, was given throughout the operation. While the uterus was large and the stump needed to be inverted, necessitating a longer operation, the bitch was never in any trouble and ate the next day.

SUMMARY

1) With the preparation and use of a 5 to 8 per cent gelatin solution, the disadvantages of the more concentrated gelatin solutions are overcome.

2) A discussion of the 21 cases indicates that, while the primary use of gelatin is in cases of shock and hemorrhage, more investigation may lead to other uses of gelatin in supportive therapy.

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Although ringworm in domestic animals is communicable to man, the incidence is sporadic and the infection more responsive to treatment than the ringworm caused by the human parasite.

Further Work in the Use of Sulfur for the Control of Enterotoxemia in Feeder Lambs

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IN EXPERIMENTS which we have previously reported,¹ sulfur has been shown to be a very effective prophylactic agent for the control of enterotoxemia of feedlot lambs when fed continuously with their grain ration.

Our experiments also indicated that too much sulfur lowered gains¹ and final weights, and when fed in excessive quantities may cause death.²

In a previous experiment, the sulfur was mixed with the grain in a 2 per cent concentration. The average daily grain consumption of self-fed lambs was 1.74 lb. per day for the feeding period but it varied

cated the need for further experiments to try to determine an optimum level of sulfur which would adequately protect the lambs against enterotoxemia without seriously interfering with feedlot gains.

The purpose of this paper is to report the results of feeding experiments conducted during the 1946-1947 season in which three different levels of sulfur were fed to respective groups of lambs continuously through the feeding period.

PROCEDURE

In this experiment, 1,075 lambs were divided into eight different lots of 134 or 135 each on

TABLE I

Sulfur	Lot No.	Death Loss		Enterotoxemia total	Ave. daily grain consumption (lb.)	Ave. daily gain (lb.)
		All causes	Enterotoxemia			
3/5 oz.	1 (134)	0	0			
	5 (134)	2	2	2 0.75%	1.55	0.27
1/3 oz.	2 (135)	6	4			
	6 (134)	4	4	8 2.97%	1.80	0.33
1/5 oz.	3 (135)	4	4			
	7 (134)	15	14	18 6.69%	1.91	0.35
No sulfur	4 (134)	8	8			
	8 (135)	25	24	32 11.9%	1.93	0.35

from 1/2 lb. at the beginning to almost 3 lb. per day at the end of the feeding period. Correspondingly, the amount of sulfur consumed varied from 2 Gm. to 20 Gm. or more per day.

While the death loss from enterotoxemia in the sulfur-fed lambs was only 0.8 per cent as compared with 8.2 per cent in the untreated controls, the average daily gain was 0.35 lb. per day as compared with 0.4 lb. in the control lambs. These data indi-

Nov. 15, 1946, when feeding started. All lots received identical rations of grain and alfalfa hay. The hay was fed through panels and the grain was accessible to the lambs at all times in self-feeders. The lambs were started on feed by the use of dried beet pulp which was gradually replaced with rolled barley. After fifty days, the ration was changed to 25 per cent ground corn and 75 per cent rolled barley for the rest of the feeding period, which was completed on Apr. 13, 1947.

It was decided to use three different levels of sulfur and to use duplicate lots for each dosage. Lots 1 and 5 were to receive 1/2 oz. of sulfur per lamb per day, mixed with the grain; lots 2 and 6, 1/4 oz.; lots 3 and 7, 1/8 oz.; and lots 4 and 8, serving as controls, received no sulfur.

Since the lambs were self-fed with free access to grain, the grain was replenished in the feeders at about weekly intervals. The amount of

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sulfur added was computed on the anticipated grain consumption for the following week. Since this grain consumption was usually underestimated the actual average daily dosage of sulfur was approximately 3/5 oz. for lots 1 and 5, 1/3 oz. for lots 2 and 6, and 1/5 oz. for lots 3 and 7.

Duplicate lots were created for all the treated and control lambs with the hope of obtaining some further evidence concerning the rôle of *Clostridium perfringens* in the development of enterotoxemia by exposing one set to cultures of this organism put in the drinking water. The other groups had only natural exposure and served as controls for this phase of the experiment.

According to plan, cultures of *Cl. perfringens* were put in the drinking water of lots 1, 2, 3, and 4 after the lambs had been on feed for seventy-four days during which time there had been practically no death loss in these lots. In contrast, the death loss in lots 5, 6, 7, and 8, as a group, was relatively heavy in spite of the fact that they were receiving identical rations. Their value as controls for this phase of the experiment is therefore questionable.

To gain further information on the effectiveness of sulfur in stopping death losses in an outbreak, sulfur at a 1/4-oz. dose level was added to the grain ration of the lambs in lot 8 (a control group which had had no sulfur) in which enterotoxemia was causing a heavy death loss. The sulfur was fed to the lambs in this lot for a period of two weeks and then permanently discontinued.

RESULTS

As in all previous experiments, sulfur in adequate amounts greatly reduced, but did not completely prevent, the death loss from enterotoxemia. The combined death loss from enterotoxemia in lots 1 and 5 in which the lambs received 3/5 oz. of sulfur per day was only 2 lambs (0.75%). Eight lambs (2.97%) died from enterotoxemia in lots 2 and 6 where 1/3 oz. of sulfur was fed, 18 (6.69%) in lots 3 and 7 on 1/5 oz. sulfur, as compared with 32 (11.9%) of the untreated controls in lots 4 and 8.

As shown in table 1, the use of sulfur did cut the grain consumption in the lots receiving 3/5 oz. of sulfur, resulting in some reduction in daily gains.

The average daily grain consumption was 1.55 lb., 1.80 lb., 1.91 lb., and 1.93 lb., respectively, for the lambs receiving 3/5 oz., 1/3 oz., 1/5 oz., and no sulfur. The average daily gains were 0.27 lb., 0.33 lb., 0.35 lb., and 0.35 lb., respectively, for the same groups.

The results of inoculating the drinking water of lots 1, 2, 3, and 4 with a toxin-producing strain of *Cl. perfringens*, are interesting if not conclusive (table 2). The culture was administered on Jan. 31, after they had been on feed for seventy-four days. At that time, only 2 lambs (0.38%) from these 4 lots had died of enterotoxemia. Both were from lot 4 which had received no sulfur. At that same time, the death loss from enterotoxemia in lots 5, 6, 7, and 8 had risen to 31 lambs (5.76%). Follow-

TABLE 2

Culture added 1/31/47				
		Death Loss		
Lot	Sulfur	Prior to 1/31	After 1/31	
1	3/5 oz.	0	0	
2	1/3 oz.	0	4	
3	1/5 oz.	0	4	
4	none	2	6	
Total		2 (0.38%)	14 (2.78%)	

Natural exposure only				
		Death Loss		
Lot	Sulfur	Prior to 1/31	After 1/31	
5	3/5 oz.	1	1	
6	1/3 oz.	1	3	
7	1/5 oz.	10	4	
8	none	19	5	
Total		31 (5.76%)	13 (2.41%)	

ing this artificial exposure of the first four lots, 14 lambs died from enterotoxemia during the rest of the feeding season, the first death occurring in forty-eight hours. In lots 5, 6, 7, and 8, not inoculated, 13 more lambs died during the remaining period. It may be assumed that these lambs had been subjected to sufficient natural exposure to account for heavy death loss, since the culture used in the inoculation was isolated from a lamb in lot 8.

The loss in lot 8 was heavy throughout the feeding period. During the month prior to Jan. 27, 15 lambs in this lot died of enterotoxemia. On this date, sulfur in a dosage of 1/4 oz. per lamb per day was added to the grain ration. This was fed for a period of two weeks during which time 2 lambs died of this disease. In the next two weeks 5 lambs died, 3 of them within forty-eight hours after discontinuing the use of sulfur in the ration.

DISCUSSION

The results of this feeding experiment show rather conclusively that sulfur in sufficient amounts is efficient in preventing enterotoxemia in grain-fed lambs and, when used in moderate doses, does not appreciably affect the rate of gain. Any loss in feeding efficiency was more than offset by the lowered mortality. Our records show that, due to the minimal death loss, the lambs receiving the heavier dosages of sulfur showed the greatest net profit. It must be noted, however, that these lambs had free access to grain at all times. This represents a severe challenge to any prophylactic method. In our own previous experiments and in numerous nearby feedlots, $\frac{1}{4}$ oz. per lamb per day given to hand fed lambs gave adequate protection.

It is interesting, but not unusual, that the combined mortality from enterotoxemia in lots 1, 2, 3, and 4 during the first seventy-four days of the feeding period was only 0.38 per cent as compared with a mortality of 5.94 per cent in lots 5, 6, 7, and 8. After isolating a culture of *Cl. perfringens* from a lamb in lot 8 and adding it to the drinking water of the first four lots, the death loss in the two groups was practically the same for the rest of the feeding period. Lots 1, 2, 3, and 4 were separated by a driveway from the other four lots but were receiving identical rations. In this area, it is not unusual that in two feedlots on the same farm or on neighboring farms a high mortality occurs in one lot and is negligible in the other, even though the lambs are receiving identical rations. Most lambs seem to harbor some *Cl. perfringens* in their digestive tracts but these organisms show a great variability in toxin production. This experiment further tends to justify our belief that a high mortality is correlated with the exposure of the lambs to a strain of *Cl. perfringens* of high toxicity.

The addition of $\frac{1}{4}$ oz. of sulfur per day to the grain ration of the control group, lot 8, resulted in a marked reduction in the death loss in that lot. It is interesting to note that 3 lambs died within forty-eight hours after discontinuing the feeding of sulfur. This with some field evidence seems to indicate that there is little residual prophylactic action after discontinuing sulfur feeding.

SUMMARY

Three different levels of sulfur were used to determine the optimum dose for the protection of self-fed lambs from enterotoxemia. The mortality from this disease was 0.75 per cent, 2.97 per cent, and 6.69 per cent, respectively, in lots of lambs receiving $\frac{3}{5}$ oz., $\frac{1}{3}$ oz., and $\frac{1}{5}$ oz. of sulfur each, daily, while the death loss in the untreated controls was 11.89 per cent. There was some inhibition of grain consumption and daily gains in the lambs receiving the maximum dose of sulfur which was economically insignificant as compared with the decreased mortality due to its use.

Exposure of a group of lambs to a virulent culture of *Clostridium perfringens* by way of their drinking water was immediately followed by an accelerated mortality. The addition of $\frac{1}{4}$ oz. of sulfur to the ration of a control group suffering a heavy death loss resulted in an immediate reduction in mortality.

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Colorado Tick Fever

Although transmitted by the same vector—*Dermacentor andersoni*—Colorado tick fever, described in *Public Health Reports* (1947), is not a mild form of Rocky Mountain spotted fever since the causative agent is a virus not a rickettsia. It is strikingly similar to dengue, a common endemic and sporadic virus infection of India, Egypt, and also the West Indies.

Mention of dengue in the published report of Colorado tick fever is a reminder that our population is not entirely exempt from the world's major infections. We have isolated cases of plague and typhus, minor endemics of smallpox, diphtheria, and tetanus, and a too high incidence of rabies, to which we are continuously exposed.

New York ophthalmologists (*Ann. Allergy*, Nov.-Dec., 1947) believe that allergy should be considered a possible predisposing factor in glaucoma.

Coccidioidomycosis of Cattle in Arizona

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COCCIDIOIDOMYCOSIS, also termed coccidioid-al granuloma, valley fever, desert fever, oidiomycosis, etc., is commonly found affecting the bronchial and/or mediastinal lymph nodes of cattle slaughtered under Federal inspection in Phoenix, Ariz. During a ten-month period in 1946-47, 511 cases were reported, 503 occurring in cattle and 8 in calves. No lesions were found outside the thoracic cavity and none were of sufficient extent to warrant condemnation of the carcass. Eleven lesions were reported involving the lungs in cattle, 1 in calves, and these lesions were slight.

The traffic of cattle in the Phoenix area—some 25 mi. surrounding Phoenix, Ariz., in the Salt River Valley—is one of the big business enterprises of this state. Cattle are shipped here from Texas, Oklahoma, New Mexico, Utah, and California. Prior to the closing of the Mexican border, a large number also came from Mexico. Most of the cattle are purchased from these neighboring states as calves and yearlings, are pastured on open ranges and pastures in the valley until they are 2 years of age, when they are placed in feedlots for sixty to ninety days. Only a small percentage of native (Arizona) cattle are finished and slaughtered in this area. The greater number of cattle that are finished are shipped to the Los Angeles, Calif., market.

Our experience has shown that it is impossible to detect coccidioidomycosis in cattle on antemortem inspections. In lots carrying the feeder's branding iron, where previous animals have been found to be infected, careful antemortem examinations were made from time to time to determine the possibility of diagnosing coccidioidomycosis. Symptoms such as coughing, difficult or impaired breathing, elevated temperatures, or off condition were constantly looked for, but never noticed. On several occasions, where such antemortem inspections were given, numerous well-marked to extensive bronchial and mediastinal lymph node lesions were found on postmortem examinations. It is the writer's opinion that

unless serologic tests are made, the diagnosis is most difficult on antemortem inspection. The disease is most commonly found in Hereford steers between the ages of 2½ and 3 years and has not been found in animals not fattened in feedlots. The facts that the Hereford breed of cattle is the most predominant in the southwest and also that steers are more frequently fed out than are other classes may account for the prevalence of the infection being most commonly found in Hereford steers. All classes of cattle destined for immediate slaughter and originating from range country have been noted to be free of coccidioidomycosis. Aged range cows and bulls of the cutter and canner grades rarely are found to be infected. It is interesting to note that one herd of aged range bulls of the Santa Gertrudis breeding had been fattened in a feedlot in the Mesa area (about 15 mi. east of Phoenix) and, on postmortem examination, 25 per cent presented lesions of coccidioidomycosis in the lymph nodes of the lungs. Strong evidence points to the fact that the infection is picked up in the feedlots. Whether the fungus (*Coccidioides immitis*) gains entrance by inhalation or via the digestive tract is debatable. Giltner,¹ in his report on the occurrence of coccidioid granuloma in cattle, injected calves subcutaneously with the fungus recovered from lesions in cattle. The site of injection presented local swellings followed by ulceration and healing with no lesions found in internal organs at autopsy five months later. Intravenous and subcutaneous inoculations of the same material produced generalized coccidioidomycosis in guinea pigs, rabbits, and dogs. Giltner's work would lead one to eliminate abrasions, open wounds following castration and dehorning, and other skin openings as the possible avenues of entrance of the fungus. Beck *et al.*^{2,3} state that the infection is picked up from the soil but does not specifically mention whether through inhalation or ingestion. Stewart and Meyer⁴ have recovered the organisms from the soil in known areas of infection in cattle in the San Joaquin Valley in California.

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A fact which may prove to be important in the prevalence of *C. immitis* in this region is the dry and dusty feedlots that are common to this area. Some of the feeding and holding pens visited contained 6 in. to 1 ft. of manure, dust, and debris. Feeding operations are conducted throughout the entire year in open corrals. To convey some idea of the aridness of this region, the total precipitation in the Salt River Valley from Jan. 1 to Sept. 4, 1947, was 1.85 in. This may be favorable to that phase of the life cycle of *C. immitis* outside the animal body. The life cycle is well illustrated in an article by Forbes and Bestebreurtje⁵ in *The Military Surgeon*.

On postmortem examination, coccidioidomycosis has been found in 1.3 per cent of the cattle slaughtered in the two federally inspected establishments in Phoenix, Ariz. As previously stated, it is most commonly found in 2½- to 3-year-old Hereford steers in good condition, and most commonly found involving the thoracic lymph nodes. Eleven cases were reported in lung tissue. No lesions were found outside the thoracic cavity. A compilation of postmortem reports from October, 1946, to August, 1947, of reported cases in cattle and calves is presented. This compilation shows 503 cases found in 38,175 cattle slaughtered during this period; also 8 lesions found in one lot of 55 calves slaughtered in May, 1947.

No lesions were found in sheep or hogs at this station. Beck *et al.*^{2,3} examined 7 mediastinal and 5 bronchial lymph nodes submitted by the Bakersfield Packing Company, Kern County, California over a period of three months and found 5 mediastinal and 2 bronchial lymph nodes positive for coccidioidal granuloma infection. Six of the positives were from cattle and 1 from a sheep. Other pathologic specimens that were submitted, including the skin, submaxillary lymph node, retropharyngeal lymph node, lung, liver, mesenteric lymph nodes, and tongue, failed to reveal *C. immitis* infection. The infection is reported to have been found in animals originating in Kern, Orange, Los Angeles, San Bernardino, Tulare, San Diego, Imperial, and Alameda counties. The lesions have been confined to the bronchial and mediastinal lymph nodes of cattle. The interesting point is that the counties in California mentioned by Beck as being infected

TABLE 1—Cases and Location of Coccidioidomycosis

Date	Slaughtered (No.)	Lesions (No.)	Location of lesions
Cattle			
Oct., 1946	2,954	46	B 16 B and M 1 M 29
Nov., 1946	2,940	32	B 10 B and M 4 M 17 M and L 1
Dec., 1946	3,355	22	B 7 B and M 1 M 14
Jan., 1947	4,389	29	B 13 B and M 1 M 14 M and L 1
Feb., 1947	3,338	16	B 4 B and M 1 M 11
March, 1947	3,885	34	B 13 B and M 1 M 19 B, M, and L 1
April, 1947	3,971	63	B 15 B and M 14 B and L 1 M 32 M and L 1
May, 1947	4,590	72	B 27 B and M 5 B and L 1 M 39
June, 1947	4,363	125	B 35 B and M 13 M 76 M and L 1
July, 1947	4,390	64	B 19 B and M 9 B and L 1 M 32 M and L 3
Total	38,175	503	
Calves			
May, 1947	55	8	B 1 B and M 1 M 5 M and L 1

This is a compilation of reported cases of coccidioidomycosis found in cattle at the federal inspection station, Phoenix, Ariz., from October, 1946, through July, 1947.

B=bronchial, M=mediastinal, L=lungs.

have practically the same geographic conditions as does the Salt River Valley in Arizona. Also, Beck's positives involve the bronchial and mediastinal lymph nodes, which are the common seats of infections found here.

The lesions of coccidioidomycosis in cattle were found in slight, well-marked, and extensive degrees involving the bronchial

and mediastinal lymph nodes. All lesions found in the lungs were slight. Macroscopically, the typical lesion presents a consistent pathologic picture. Outwardly, the affected lymph node has a bulbous appearance. On incision, one will notice a few, or numerous, circular areas of pathologic tissue with a purulent center. The purulent material may be white to a light cream color, and has a thick and adhesive property. Little or no change will be noted of the surrounding lymphoid tissue. Many times these circular areas of infection are grouped in only one-half of the gland, thus thickening this particular half and giving the bulbous appearance. On close examination, one may notice coalescence of several foci of infection resulting in lesions of variable size. On the average, the spheroid body or lesion would measure $\frac{1}{8}$ in. in diameter. In making a differential diagnosis between coccidioidomycosis and actinobacillosis or tuberculosis, we have, during the ten-month period, always called upon laboratory assistance. In our experience, we have found that macroscopically it more closely resembles tuberculosis than actinobacillosis; however, tuberculosis is a rare disease of beef cattle in the southwest.

Because of the limited number of lesions found affecting the lung tissue, we hesitate to describe a typical lung infection. Those we have seen presented a compact pneumonic area, red or varying from a pale red to a gray white, and not raised or depressed from the surrounding normal lung tissue. Incising through a lung lesion we have noticed, in some cases, spherical lesions resembling those found in the bronchial or mediastinal lymph nodes. In all lesions affecting the lungs, well-marked lesions were found in the lymph nodes draining the infected area. No multiple or progressive lesions were found. The affected areas seemed to be well-defined and slight in extent. The largest lesion found in the lungs would probably measure $1\frac{1}{2}$ in. in diameter by $\frac{1}{2}$ in. in thickness.

Personnel assigned to postmortem inspections have been strikingly successful in correctly diagnosing this disease. Prior to reporting the lesions on postmortem reports, inspectors have thoroughly familiarized themselves with typical lesions, and specimens were forwarded to the Denver laboratory of the BAI for confirmations. Whenever any doubt existed that the lesion

was coccidioidomycosis, no diagnosis was made in the postmortem report. The lesions reported, we believe, were all typical of those proved to be coccidioidomycosis on laboratory examination.

Table 2 shows the number and kinds of diseased tissues submitted to the Denver, Colo., laboratory of the BAI, the suspected trouble, and the laboratory findings. These specimens were submitted for laboratory examinations over a period of ten months to confirm our diagnosis on postmortem inspection.

CASES 1 TO 12

1) *Retropharyngeal Lymph Node*.—This specimen was submitted for laboratory examination because it closely resembled lesions of

TABLE 2—Coccidioidomycosis in Arizona

Tissues submitted	Suspected trouble	Laboratory findings
BLN	C	C
MLN	C	C
MLN	C	C
BLN	C	C
BLN	C	C
MLN	C	C
*1) RLN	C	Calcified cervical abscess of undetermined origin
MLN	C	C
BLN	C	C
2) MLN	C	C
MLN	C	C
BLN	C	C
MLN	C	C
Lung	C	C
MLN	C	C
BLN	C	C
MLN	C	C
3) Lung	C	Worm nodules
Lung	C	Worm nodules
BLN	C	C
MLN	C	C
4) MLN	C	C
5) Liver	C	Necrobacillosis
MLN	C	C
MLN	C	Corynebacterium abscess
6) BLN & surrounding tissues	C	C
BLN	C	C
Lung	C	C
7) BLN	C	C
8) MLN	C	C
Lung	C	C
BLN	C	C
9) Lung	C	C
10) MLN	C	C
MLN	C	C
Lung	C	Parasitic nodule
11) Superficial shoulder muscle	C	Nonspecific granuloma of shoulder muscle
12) BLN	T	Probable calcified coccidioidal granuloma

*Cases 1 to 12 are discussed on following pages.
BLN=bronchial lymph node, MLN=mediastinal lymph node, RLN=retropharyngeal lymph node, C=coccidioidomycosis, T=tuberculosis.

coccidioidomycosis found in the bronchial and mediastinal lymph nodes. Other animals in the same lot showed infections in the lymph nodes of the lungs.

2) *Mediastinal Lymph Node*.—This was the first case found in a female by the writer. It was an 18-month-old Hereford heifer that had been fed out in one of the local feedlots.

3) *Lung*.—This lung lesion was suspected because the mediastinal lymph node was involved; however, the laboratory reported "the small oval lesions in the lung are made up of focal accumulations of lymphoid cells. The nodules are surrounded by a dense fibrous capsule infiltrated with many eosinophils. These lesions are believed to be the result of lung worm infestation and compare to lymphoid nodules observed in lung worm infestation in swine."

4) *Mediastinal Lymph Node*.—Macroscopically, the lesion closely resembled tuberculosis. The laboratory informed us "the stained smears were negative for acid fast bacilli. In sectioning other lesions of this character we have found that most of spherules disintegrate, undergo calcification, and give the gross lesion the appearance of tuberculosis."

5) *Liver*.—The lesion in the liver was suspected of coccidioidomycosis because 8 of 42 head in this lot did show characteristic lesions in the bronchial and mediastinal lymph nodes; however, the laboratory findings reported "stained smears revealed numerous gram-negative beaded filamentous organisms morphologically characteristic of *Actinomyces necrophorus*."

6) *Bronchial Lymph Node and Surrounding Tissues*.—This lymph node appeared to have a fistulous tract between it and the bronchus; however, no evidence that the lesion had broken through the capsule was noted by the laboratory on examination.

7) *Bronchial Lymph Node*.—Typical lesion of coccidioidomycosis found in an aged bull that had been fed out. This bull was of the Santa Gertrudis breed.

8) *Mediastinal Lymph Node*.—Typical lesion of coccidioidomycosis found in an aged bull that had been fed out. Same as case 7.

9) *Lung*.—This is the first lung lesion found in a calf. The animal, a Hereford steer, was approximately 1 year old. It had been in a feedlot for about sixty days.

10) *Mediastinal Lymph Node*.—This lesion was from an animal, approximately 1 year old, from the same lot as case 9. The lesion was typical of those found in the older steers.

11) *Superficial Shoulder Muscle*.—A granulomatous area involving the shoulder muscle was submitted because a typical lesion was noted in the mediastinal lymph node. The laboratory reported it as a nonspecific granuloma. The writer is now of the belief that it was probably due to "cowboy" vaccination.

12) *Bronchial Lymph Node*.—This lesion was submitted because grossly it had the characteristics of tuberculosis, and was from a young bull apparently raised under range conditions on the San Carlos Indian Reservation. This was the only lesion found in an animal that had not passed through one of the feedlots in this area, and being a bull made it doubly rare. The laboratory diagnosis of probable calcified coccidioidal granuloma is indefinite. The microscopic findings in this case are interesting: "A section of the calcified bronchial lymph node shows a chronic granulomatous process consisting of several encapsulated calcareous foci surrounded by granulomatous tissue. A number of giant cells were seen about the calcareous material. Careful search failed to show the spherules of *Coccidioides immitis* or acid-fast bacilli. Neither did we find any evidence of rosette formations. From a histologic point of view, the lesion could be interpreted as tuberculosis, coccidioidal granuloma, or even calcified actinobacillosis. While the lesion was of a nonspecific character, of the three possibilities I would be inclined to consider this a case of calcified coccidioidal granuloma, since several cases of coccidioidal granuloma received from your station have originated from Indian Reservations in Arizona. Your records may show other cases with origin on the San Carlos Indian Reservation."

COMMENTS

During the period covered by this report, the writer maintained a map of Arizona showing the areas from which cattle were shipped and found to contain coccidioidal infections. By the use of this map, it was concluded that the majority of infected cattle were from the immediate vicinity of Phoenix, Ariz. This information does not necessarily indicate that other desert towns such as Tucson or Yuma and their surrounding areas are free from the infection, because few cattle are shipped from those areas for marketing here. However, no federal meat inspection service is carried on at those points, and since both towns have reported cases existing in the human population, it is probable that cattle and/or sheep may also harbor the infection there.

This report is also incomplete in that no positive evidence is presented that the fungus exists in the soils of the areas from which known infected cattle have originated. Study and work along this line would call for more time and facilities than are now available. We have only presumed the infection is in the soil; we believe both cattle and human beings become infected through inhalation.

In animals that have shown the infection in the lymph nodes of the lungs, careful examinations of the tissues in the region ventral to the thoracic vertebral column were always made. Many times it was noted that the eviscerator had left a portion of the infected lymph nodes within the carcass. The prepectoral lymph node was examined in practically every case where the infection was found elsewhere but was never noted to be infected.

Many cases of coccidioidomycosis in the human population of this area have been reported. The United States Army has records of many positive reactions to the coccidioidin skin test conducted during the war years at military installations within this state. The greater percentage of hospitalized cases reported in the November, 1946, issue of *The Military Surgeon* were from the southwest. From time to time, infections have been found existing in the Indians on the Papago Reservation near Phoenix.

During the past year, the health department of the State of Arizona took many chest x-rays. A mobile unit traveled over the entire state and the x-rays were made free of charge. Those plates designated as positives led many of the people to believe they were tuberculous, or that they have had tuberculosis at some time during their life. It would indeed be interesting to know how many of the so-called positives would prove to be coccidioidomycosis if further examinations and serologic tests were given.

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Government figures show that in the decade from 1936 to 1946, egg production on American farms increased from an average of 121 per laying bird to 155—a rise of over 28 per cent.

Benadryl—Antihistaminic

Benadryl (beta-dimethylamino-ethylbenzhydryl ether hydrochloride), first studied and synthesized and tried by Parke, Davis & Company in 1945, possesses the ability to neutralize or counteract the action of histamine. Pharmacologists agree that besides being antihistaminic, the chemical is antispasmodic and exerts an atropine-like and depressive action on the central nervous system; hence the claims of its value in the treatment of such allergic states as hay fever, bronchial asthma, urticaria, angioneurotic edema, sea sickness, migraine, and other conditions thought to be caused by the presence of histamine or similar substances in the blood. Brought up to date, knowledge of this sensational drug can be summed up in a few words. It has a wide margin of safety, effects spectacular cures in some cases, and is definitely of limited value in others. Knowledge of its dynamics is lost among the unknowns of the states for which it is prescribed. Its indications in animal medicine remain to be worked out. There may be many or few. But in view of the part played by histamine in animal physiology, the clinical evolution of benadryl is something for the veterinarian to watch.

The Blink Rhythm, or Wink Rate

Physiology fell heir to a new *rate* or *rhythm*, when Physicist Robert E. Lawson, University of Sheffield (England) (*Sci. Illust.*, May, 1948), classified the wink rate of various groups and thus not only gave it a place along with *pulse rate*, *heart rate*, *respiratory rate*, but also attached considerable importance to it in modern life.

Most men wink every 2.8 seconds and most women every 4 seconds. Others take more time between winks. The slower types of winkers are classified in three categories: plateau, bimodal, and symmetrical. Translated to practical terms, these figures show that in driving a car, for example, the road is blacked out to the driver for a total of 40 miles out of every 100.

The prodigious athletes in fast-action sports (baseball, basketball, hockey, tennis) are slow winkers and so are the accurate bombers of swift-flying airplanes.

The duration of a wink is long enough to black-out a signal to the engineer of a fast-moving train.

Bovine Renal Tumors, Incidence and Histopathology

ZULMIRA DE MENEZES, B.S., D.M.V.

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THE OCCURRENCE of renal tumors in cattle has been observed by many authors. Trotter, the English pathologist (according to Courteau¹), conducting his research in the slaughter-houses of Glasgow, found 305 bovine tumors; of these, only one was in the kidney (cancer).

Detroy (*see* Courteau¹) has presented interesting facts about blastomas in animals. Over a period of twelve years this author identified 65 bovine blastomas—4 in young, and 61 in older animals. Of these neoplasms, 4 were located in the kidneys.

Feldman² reports that in his collection of bovine carcinomas, the organs attacked are: uterus, ovary, thyroid, biliary vesicle, vulva, kidneys, thymus, skin, and liver. In the chapter in which he discusses embryonic nephromas, he relates that in 230 tumors of the bovine species, the presence of only 1 embryonic nephroma was verified.

Jackson,³ of South Africa, observed the presence of 1 renal adenoma and 5 embryonic nephromas in the kidneys of cattle,

there being pulmonary metastasis in 1 case.

Mendoza,⁴ who has dedicated long observations to the study of tumors in animals, makes no reference to the presence of tumors in the bovine kidney.

Rangel and Machado,⁷ of Brazil, also studied the incidence of tumors in animals. They report the presence of 3 adenocar-



Fig. 1—Material 5238. Scirrhous adenocarcinoma.

From the Laboratory of Pathologic Anatomy of the Institute of Animal Biology, Rio de Janeiro, Brazil.

This paper is dedicated to the women veterinarians attending the first annual meeting of the Women's Veterinary Association, held during the Eighty-fourth Annual Meeting of the AVMA at the Netherland Plaza Hotel, Cincinnati, Aug. 18-21, 1947. To all of our American colleagues who organized and attended this magnificent convention, we send our words of faith in their success that will be reached. Women veterinarians from all nations: We salute you in the name of Brazil.

We acknowledge our sincere indebtedness to all who helped us in the execution of this work, it being appropriate to mention the names of: Dr. Argemiro de Oliveira, director of the Institute of Animal Biology, and Dr. Victor Fidély Lapagesse, chief of the Section of Pathological Anatomy of the Institute, by whose courtesy this work was accomplished in the laboratory of pathologic anatomy; Dr. Jefferson Andrade dos Santos, whose valued aid and wise direction was of great assistance; Snr. Honor Lagoeiro Torres, laboratory technician, to whom we are indebted for the excellent histopathologic sections; Snr. Celestino Mesquita, photographer of the Institute, for his magnificent photographs; and Senhorita Maria de Pompéia Araujo, competent librarian, for her proverbial good will in the compilation of the bibliography.

cinomas in kidneys and 2 adenomas, there being 1 nephroma, in a cow.

Finally, the works of Mosconi⁵ and Pires⁶ should be cited. The former mentions 1 case of dysembrioma in a bovine kidney, in reporting on 9 cases of renal tumors in animals. The latter describes 1 bovine renal tumor, both originating in the renal blastema. One was benign, with muscular and fibrous nephrogenous tissue and the other was completely malignant.

OBSERVATIONS

The material utilized in our studies all originated in abattoirs and refrigerating plants. In some cases, the entire kidney was received from the killing rooms, in others only the fragment containing the neoplasm.

The material for histopathologic examination was fixed in Zenker's liquid, imbedded in paraffin, stained with hematoxylin-eosin and with Van Gieson's method.

THE INCIDENCE OF RENAL TUMORS

The total number of bovine tumors in the collection of oncology of the Laboratory of Pathologic Anatomy, where this work was conducted, was 113. Of these, 8 (7%) were renal.

ANATOMIC AND HISTOPATHOLOGIC ASPECTS

Material 5238.—Two bovine kidneys, received from the refrigeration plant, presented on their parietal surfaces many wrinkles and a dark



Fig. 2—Material 4483. Dark celled adenoma.

brown color (fig. 1). Under low power it was noted that the renal tissue was entirely replaced by neoplastic proliferation, in which thick, tangled fibers of connective tissue predominated. Scattered through this tissue, were formations of epithelial type.

Under high power, we found this connective tissue poor in cells, and the epithelial elements arranged in a formation comparable to glandular acini. There were many atypical cells in this epithelial structure.

The diagnosis was scirrhous adenocarcinoma.

Material 4483.—A bovine kidney presented macroscopically a great tumorous mass in the form of a nodule occupying an entire median nodule in the external part of the organ. This tumorous mass had a grayish color, a rounded form, and measured 6 cm. in diameter (fig. 2).

The low power showed that the tumorous mass was separated from the normal renal tissue by a heavy capsule of connective tissue that was predominantly fibrous. The tumorous mass was composed of cellular groups always delimited by the basal membrane.

Studying one of these formations under high power, we learned that its structure was of cells morphologically similar, with nuclei rather poor in chromatin, cytoplasm a little cloudy and decidedly acidophilic. These cells often were grouped in the form of ducts with a central lumen.

An amorphous acidophilic substance was

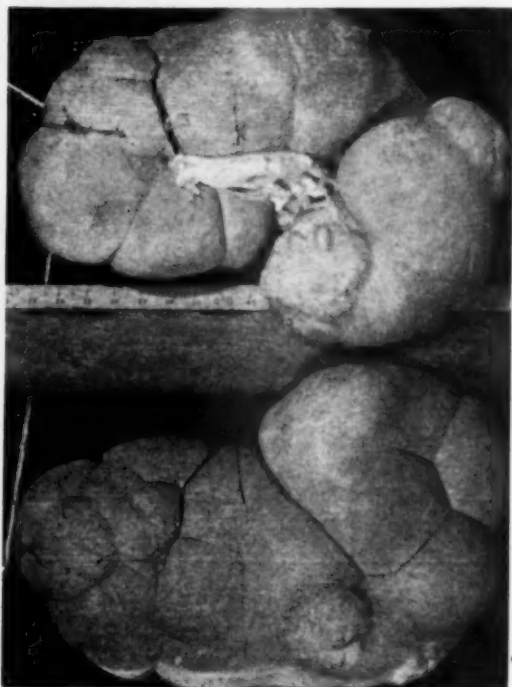


Fig. 3—Material 1908. Carcinoma with adenocarcinomatous portions.

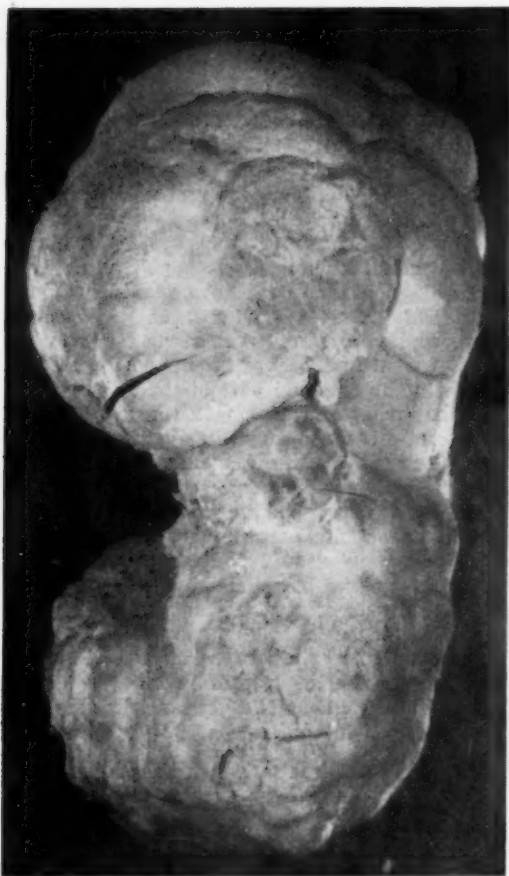


Fig. 4—Material 4861. Carcinoma with adenocarcinomatous portions.



Fig. 5—Material 4483, x 120. Dark celled adenoma, stained with hematoxylin-eosin.

noted in the lumen of these ducts. Hyaline cylinders were observed in the lumen of renal ducts and in the renal tissue adjoining the tumor. The glomeruli were flattened, probably, by the pressure of the tumor (fig. 5).

The diagnosis was adenoma of dark cells or chromophilic cells.

Material 1689.—This material consisted of fragments of a bovine kidney from Sao Paulo.

Low-power observation showed that the tumorous mass was separated from the normal renal tissue by a connective tissue capsule, which had septums that gave the tumor a lobulated aspect. The tumor was composed of nested cells limited by a clear basal membrane.

Observing the material under high power, we noted that the tumor was composed of cellular cords, and the limiting basal membrane presented fibers with flattened nuclei.

There were cells of uniform aspect, with ovoid nuclei and vacuolated clear cytoplasm (fig. 6).

The diagnosis was clear-celled adenoma of Roussy or hypernephroma.

Material 1056.—Pieces of bovine kidney were received from Rio Grande do Sul. With low power, we saw that the medullary substance of the kidney had been infiltrated with neoplastic elements in a formation similar to glandular acini with lumens containing cellular fragments.

On examination under high power, there was evidence of tubular formation composed of various layers of cells irregularly arranged. The cells had vacuolated cytoplasm, nuclei poor in chromatin, and contained large clear nucleoli (fig. 7).

The diagnosis was adenocarcinoma.

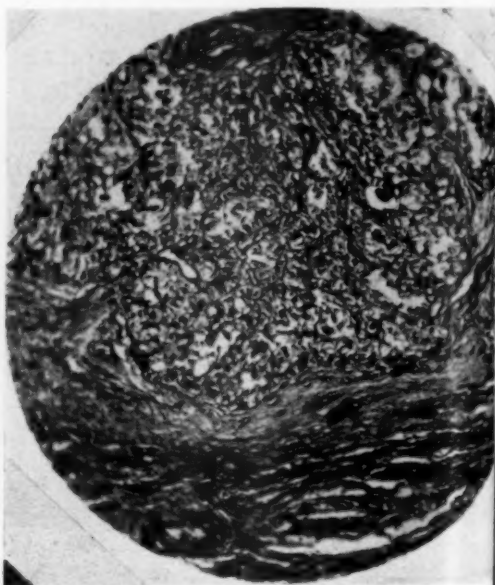


Fig. 6—Material 1689, x 120. Clear celled adenoma, stained with hematoxylin-eosin.

Material 1400.—A tumor of bovine kidney was received from Rio Grande do Sul. Macroscopically, the kidney was very much enlarged. Under low power, the renal cortex presented foci of sclerosis and these foci showed scattered epithelial elements, resembling tubes in whose lumens was cellular detritus.

Observing these epithelial formations with high power, we saw that the wall of the ducts were irregular in thickness due to the increased number of cells at certain points.

Atypical cells occurred in the nested epithelial elements and, with equal frequency, cells with vacuolated cytoplasm (fig. 8).

The diagnosis was scirrhous adenocarcinoma.

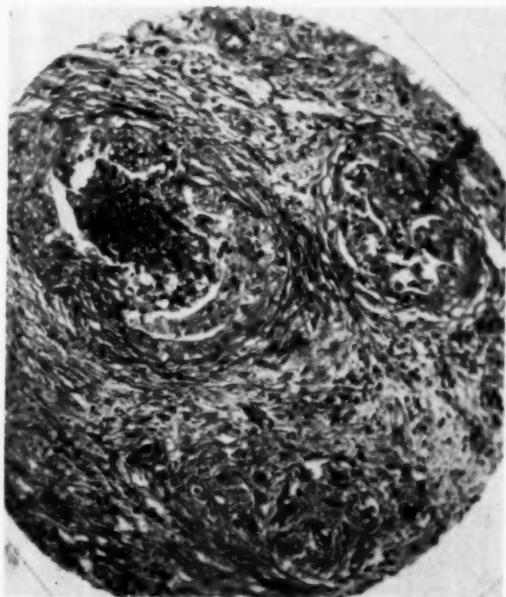


Fig. 7—Material 1056, x 120. Adenocarcinoma, stained with hematoxylin-eosin.

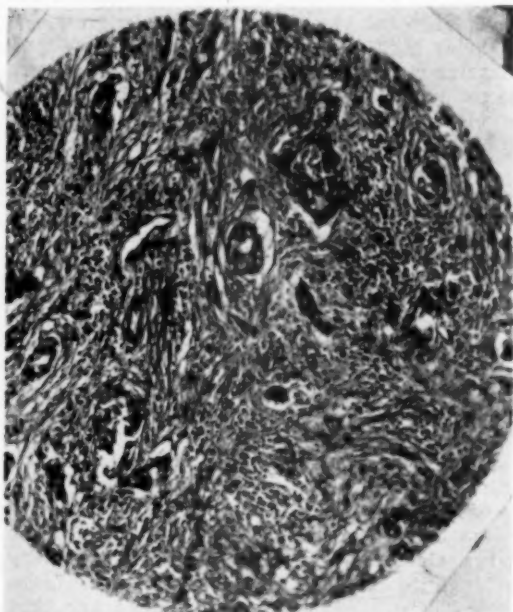


Fig. 8—Material 1400, x 120. Scirrhous adenocarcinoma, stained with hematoxylin-eosin.

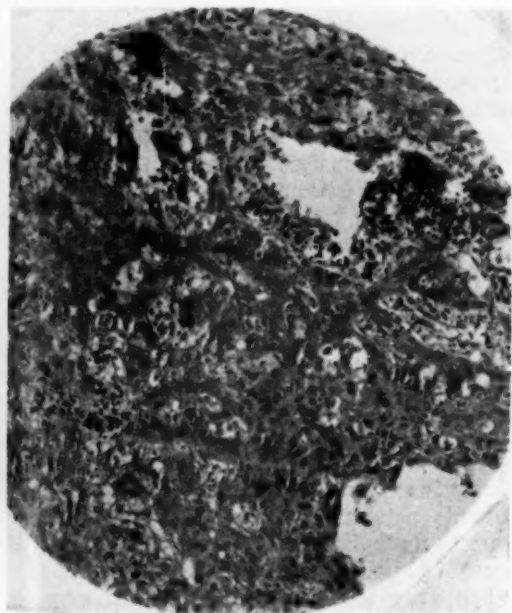


Fig. 9—Material 1908, x 120. Carcinoma with adenocarcinomatous portions, stained with hematoxylin-eosin.

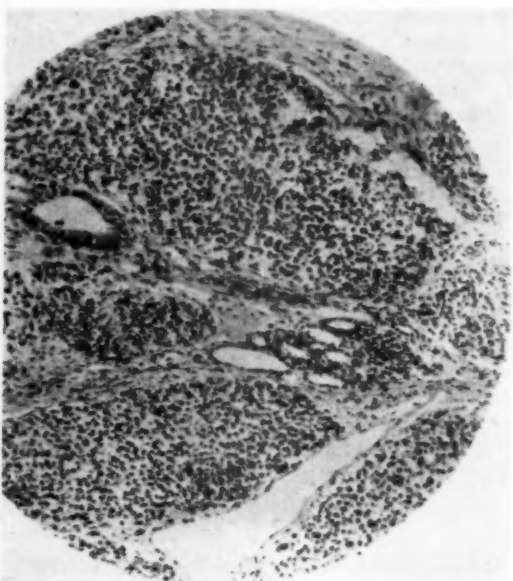


Fig. 10—Material 970, x 120. Embryonic nephroma, stained with hematoxylin-eosin.

Material 1908.—This material consisted of 2 kidneys from Sao Paulo. Macroscopically, 1 of them presented 2 protruding nodules measuring 2½ cm. in diameter. The other kidney presented 3 very salient nodules measuring approximately 4 cm. in diameter (fig. 3).

Low-power examination revealed that the kidneys were invaded by a neoplastic process. The invasiveness of the tumor could be recognized by the presence of tumor islets in regions of renal tissue, with sclerotic areas.

Under high power, evidence of the result of invasion was seen. The blastoma was composed of cellular cords whose cells had a large mass of clear, acidophilic cytoplasm, with atypical nuclei.

Frequently, the tumor cells were grouped in large masses whose morphology was comparable to epidermoid carcinoma. At other points, the neoplastic cells were arranged like gland ducts (fig. 9).

The diagnosis was carcinoma with adenocarcinomatous portions.

Material 4861.—A bovine kidney was received from the abattoir. Examining this material under low power, we observed that the kidney was invaded by cellular elements, often arranged in cords. There were also rounded foci of necrosis, rather eosinophilic, and presenting nuclear detritus in their mass.

With high power, we saw that the nuclei of these cells were poor in chromatin and had large, clear nucleoli. The cytoplasm was very acidophilic and the shape of the cells indistinct. These cells were sometimes arranged in large superficial areas composed of numerous elements; at other times they gave rise to structures resembling glandular ducts.

The diagnosis was carcinoma with adenocarcinomatous portions.

Material 970.—Parts of bovine kidney from Rio Grande do Sul. The histologic picture of this tumor, under low power, was characterized principally by its lobulated aspect and the uniformity of its cells. Much of the central portion of the lobule as well as the periphery contained formations with central lumens like glandular ducts.

Under high power, the tumorous mass had the typical structure of a sarcoma. The nuclei of the cells were relatively poor in chromatin, the nucleoli well marked, and the shape of the cells indistinct. At many points, the cells were grouped to form structures that could be compared to glandular ducts or rosettes (fig. 10).

The diagnosis was embryonic nephroma (simple nephrogenic dysembryoma).

SUMMARY

The author describes 8 cases of renal tumor in *Bos taurus*. These cases consti-

tuted 7 per cent of 113 cases of blastoma in the bovine species. The tumors under study represent all of those found in the slaughter-houses, and were classified thus:

Adenoma (dark celled)	1 case
Adenoma (clear celled) (hypernephroma type)	1 case
Adenocarcinoma	1 case
Scirrhus adenocarcinoma	2 cases
Carcinoma with adenocarcinomatous portions	2 cases
Embryonic nephroma (simple nephrogenic dysembryoma)	1 case

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Chemotherapy of Tuberculosis

Veterinarians and physicians of the Mayo Clinic, in a cooperative study, have been testing the therapeutic value of simultaneous administrations of two and even three drugs in experimental tuberculosis. Recent studies by Feldman, Karlson, and Hinshaw showed that promin given subcutaneously is an effective though moderately toxic drug for use against this disease, and the studies are being extended to test the value of parenteral promin in conjunction with streptomycin.

Still another combination being explored (*Proc. Staff Mtg., Mayo Clin.*, March 3, 1948) is a trio of promin, streptomycin, and promizole or para-aminosalicylic acid. Promin is primarily toxic to erythrocytes, streptomycin is potentially neurotoxic, while either promizole or para-aminosalicylic acid may act chiefly on the gastrointestinal tract. Because each of these agents acts in a different way on the patient, their harmful effects are not likely to be additive. A hoped-for result is that such drug teams may slow the appearance of streptomycin-resistant organisms.

Brucellosis Eradication

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A herd of 2,000 beef cattle has been raised and maintained free from brucellosis and tuberculosis under range conditions in Wyoming for thirteen years. Several factors have combined to make this possible: (1) In our location, sunshine and a dry soil discourage the survival and spread of infectious agents; (2) accurate biologic tests have enabled us to detect infectious diseases and their agents; (3) manager and veterinarian have coöperated actively; (4) replacements and additions have been made only at irregular intervals and under careful supervision.

THE BRUCELLOSIS PROBLEM

In 1929, an exploratory blood test disclosed the presence of 342 reactors out of a breeding herd of approximately 1,000 cows. These were removed from the herd. During the next six years, animals more than 6 months old were tested annually, and those that showed a positive plate agglutination at a dilution of 1:25 or higher were removed from the main herd and placed in the so-called positive herd. Admittedly, 1:25 is a close reading and probably resulted in removal of many animals that might safely have remained in the clean unit.

The Reactor Group.—As reactors were found on successive tests of the clean herd, they were added to the positive herd. These animals, as well as some untested animals which had aborted or had retained the fetal membranes, were segregated as an infected group. Some 400 cows finally passed through this reactor group. It was closely culled at all times, because management regularly condemned for beef certain older animals. This number varied with the number of heifers of desirable conformation and blood lines selected for addition to the breeding herd, it being the policy to maintain a breeding herd of approximately 1,000 females. Members of the reactor group were removed if they continued to abort or proved to be unproductive for any reason.

This culling process resulted in a higher

reproductive efficiency among the members of the reactor group than that attained by the members of the larger and clean unit. Eventually, however, the number remaining in the positive herd was only a fraction of those originally segregated. Some outstanding cows were retained for a number of years because they regularly produced calves of excellent quality, and about half of these cows returned to a negative status. Nearly all calves from the positive group reacted negatively to the blood test and were added to the clean unit. In fact, the positive herd became so small that, in 1940, it was deemed advisable to dispose of it.

The Clean Unit.—Since the 1934 test, no new reactors have been found. Annual tests of the entire herd from 1935 through 1938 showed all animals to be negative. From 1939 through 1943 the findings were the same, except that the samples were drawn by a veterinarian of the U. S. Bureau of Animal Industry and were tested at an official BAI laboratory.

During the years 1944 through 1948, conditions were such that no complete herd test was attempted. However, all animals offered for sale were tested, as were cows that had aborted or had retained fetal membranes. The only animals showing even a suspicious reaction were a small group of heifers which had been vaccinated with strain 19 *Brucella* vaccine while 6 to 8 months old. These will be discussed later. No unvaccinated animal showed any reaction to the rapid or plate blood test at 1:25 or higher dilution.

In 1947, the complete herd (1,613 animals more than 6 months old) was again bled by BAI veterinarians and the samples were tested at a BAI laboratory. Three vaccinated heifers reacted in the 1:50 dilution. All other animals were completely negative.

The Vaccinated Group.—Vaccination of calves, using strain 19 under the supervision of the BAI, was begun in 1945. Conferences were held annually or oftener to examine the records and discuss the problems of this particular herd. The conferees were members of the staff and veterinarians

in constant touch with brucellosis. At no time did they advise vaccination; in fact, it was the unanimous opinion of the group that under the existing conditions—almost perfect isolation from outside contact, and daily observation by a caretaker—vaccination was contraindicated.

In spite of an opinion to the contrary, a vaccination program was introduced for the following reasons: (1) There was frequent demand for vaccinated heifers to be introduced into herds infected with *Brucella*; (2) the U. S. BAI had reported that spread from vaccinated heifers to susceptible animals was unlikely; (3) vaccination had been recommended as a means of conferring a reasonable degree of protection against a possible "storm" of abortion in an otherwise highly susceptible herd.

Discussion.—Vaccinated heifers that attained the age of 20 months or more without returning to a negative status have caused us trouble. Sales have been voided and checks have been returned because the laws of certain states bar the entry of such animals, even though they originate in a herd that has not contained a reactor during the preceding ten years. Many of these same states will accept animals on a single negative test within thirty days, when the status of the herd of origin is unknown, when the herd is known to contain reactors, or when the records show that it has only recently achieved clean status.

Bull calves have not been vaccinated under our program, because: (1) There appears to be no valid reason for so doing; (2) most bull calves are offered for sale at an age when they would not yet have returned to a negative status; (3) buyers desiring vaccinated bulls may have this service performed after purchase.

THE TUBERCULOSIS PROBLEM

No member of the herd has reacted to the tuberculin test within the period under discussion, although the herd has been tested regularly. Moreover, the county in which the ranch is located has been a modified accredited area for many years.

SUMMARY

A brief report is submitted of a herd of 2,000 beef cattle in which *Brucella* reactors were numerous in 1929, but which was brought to clean status in 1935 by a test and segregation plan. Since that time, the

only reacting animals comprise a small group of heifers which have failed to return to negative status after being vaccinated as calves with strain 19.

Iodine Treatment of Fowl Coryza

Iodized drinking water, alone or in combination with iodine-vapor disinfection of buildings, is credited with stemming outbreaks of fowl coryza and promoting recovery (*Vet. J.*, 104, March, 1948:70-74).

About 17,000 birds on five farms having a varying incidence of fowl coryza received 1 part of free iodine in every 20,000 parts of drinking water, provided by mixing 1 teaspoonful of Lugol's solution with each gallon* of water. Where practical, saucers each containing about 10 Gm. of resublimed iodine were placed on cross beams, one saucer for about every 200 cu. ft. of air space. Under usual conditions of temperature and humidity, the saucer contents were vaporized within three or four days and refilling was necessary.

A drop in the number of cases of coryza occurred immediately after the start of treatment, and within one to seven weeks flock recovery was either complete or only a few birds remained infected. The author attributed marked success to the combination vapor-drinking water treatment, while pointing out that further studies should be made of the value of iodized water alone.

*Imperial gallon containing 277.274 cu. in., compared with 231 cu. in. for the U. S. gallon.

Histoplasmosis.—Physicians of the U. S. Public Health Service have reported the isolation of *Histoplasma capsulatum* from the gastric contents of several histoplasmosis patients—a finding not previously reported by other investigators. Study of a series of 10 cases in the Kansas City area, in which half of the patients recovered, disproved a prevalent belief that histoplasmosis is nearly always fatal (*Pub. Health Rep.*, March 5, 1948). Continuing studies suggest that this disease is more prevalent than suspected, perhaps occurring on a fairly wide scale in a mild, nonfatal form.

Penicillin treatment in human cases of pulmonary, abdominal, and pelvic actinomycosis has afforded an impressive percentage of recoveries.

The Effect of Thiouracil-Induced Hypothyroidism on the Resistance of Chicks Artificially Infected with *Eimeria Tenella*

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BARBER, D.V.M., PH. D.

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RECENTLY, there has been considerable interest in the use of artificially induced hypothyroidism as a means of fattening broilers. Thiouracil, an antithyroid agent, has proved particularly effective in inhibiting the thyroid, thus decreasing the metabolic rate. Increase in fat deposition follows the decrease in rate of metabolism. It is widely recognized, however, that hypothyroidism is associated with a high degree of susceptibility to infections.¹

This paper is a report of a preliminary study to determine whether thiouracil-fed chickens are more susceptible to artificially induced cecal coccidiosis than untreated controls or than chickens treated with thyroprotein (thyroxine) to produce hypothyroidism.

Ninety-four battery-reared chicks 2 weeks of age, representing two breeds and one cross-breed, were divided into four groups. Two of the groups were fed only a standard ration; one was used as an infected control, and the other as an uninfected control. The third group was fed the standard ration plus 0.1 per cent 6-methyl thiouracil.* The fourth group was fed the standard ration plus 0.02 per cent thyroprotein.†

Twelve days later, when the birds were 26 days old, all birds except those in one control group were individually inoculated *per os* with 3.0 cc. of a suspension containing approximately 20,000 sporulated oöcysts of *Eimeria tenella* per cubic centimeter.

Birds that died within ten days following inoculation were examined to confirm the diagnosis of coccidiosis. The effectiveness of the thiouracil treatment was evidenced by marked thyroid enlargement at autopsy. Thyroprotein

treatment was apparently effective since it produced such a decided reduction in thyroid size that the glands could not be detected macroscopically.

Data were also secured on the amount of gain for the period of ten days immediately prior to inoculation, and for the twelve-day post-inoculation period.

The mortality data presented in table 1 indicate that thiouracil treatment, under the conditions of this experiment, was not prejudicial to the survival of birds artificially infected with cecal coccidiosis. Post-inoculation gain in body weight was the same for birds in the thiouracil-treated and the infected control groups. This suggests that the severity of infection was comparable among the survivors of both groups.

As expected, the infection seriously reduced growth rate. Uninfected control birds gained more than twice as much as the survivors in either the infected control, or the thiouracil-fed groups.

It does not seem advisable at this time to draw any conclusions regarding the results obtained from thyroprotein treatment. The data tend to suggest that this treatment may increase resistance as shown by the lowered mortality, and/or increase recuperative power as shown by the somewhat greater gain in weight subsequent to inoculation, but these differences are not statistically significant.

COMMENT

Work (in press) in this laboratory suggests that breed and strain differences exist in the resistance of chickens to artificially induced cecal coccidiosis. This implies an inherent relative immunity to this disease which, in turn, suggests the possibility that the endocrine balance of the bird may be a factor in increased or decreased resistance.

Unfortunately, the whole problem of resistance to cecal coccidiosis is complicated by the fact that the lethal action of coccidia and the mechanics of immunity are

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*The 6-methyl thiouracil was supplied by Dr. Earl D. Stewart of the Schwarz Laboratories, New York, N. Y.

†Thyroprotein (trade name—protamone) was furnished by Dr. W. R. Graham, Jr., of the Cerophyl Laboratories, Kansas City, Mo. This product contains 3.0 per cent thyroxine as determined by the manufacturer's chemical assay.

apparently unknown. Although infected birds may apparently bleed to death, Tyzzer² does not consider the amount of hemorrhage a satisfactory criterion of severity of infection. It is widely recognized³⁻⁵ that severely infected birds which fail to succumb to coccidiosis are immune to subsequent reinfections. Immunity is specific for each species of *Eimeria* but the duration of the immunity apparently has

published at this time because the writers do not anticipate the opportunity to follow up this problem in the near future.

SUMMARY

A preliminary study was made of the effect of thiouracil-induced hypothyroidism on the resistance of chicks to artificially induced cecal coccidiosis. Birds fed a diet containing 0.1 per cent thiouracil and in-

TABLE 1—Mortality and Body Weight Gains of Thiouracil- and Thyroprotein-Fed Chicks Following Artificially Induced Cecal Coccidiosis

Treatment	Body weight gains in lb.			Mortality	
	Initial birds (No.)	10 days be- fore infect.	12 days af- ter infect.	Birds (No.)	Per cent
Control (infected)	23	0.15	0.17	11	47.7
Thiouracil 0.1% (infected)	24	0.15	0.17	12	50.0
Thyroprotein, 0.02% (infected)	22	0.16	0.22	8	36.3
Control (uninfected)	24	0.15	0.38	0	00.0

not been determined. Since it has been shown⁶ that immune serum injected into susceptible birds does not produce passive immunity, it is probable that immunity to cecal coccidiosis is not due to circulating antibodies.

The present workers were encouraged to undertake this experiment because it has been shown⁷ that thiouracil may produce leucopenia and, occasionally, fatal agranulocytosis. Moreover, the work of Warren⁸ suggests to the present writers that thiouracil-induced leucopenia may be a result of reduced rate of formation of white blood cells.

Only 1 case of lowered resistance due to hypothyroidism has been described in fowl. Shaffner⁹ observed that, although degree of exposure was primarily the same, cocks fed 0.5 per cent thiouracil were apparently more susceptible to coryza and Newcastle disease than cocks fed a normal diet.

Thyroprotein treatment was used in this study because hypo- and hyperthyroidism are relative, and it was thought that birds having a relatively high blood level of thyroxine might be more resistant. A higher thyroxine secretion rate has been found¹⁰ in hybrid and crossbred chicks than in purebreds. The implication is that relatively high thyroxine levels may account for hybrid vigor. Studies (in press) made in this laboratory suggest that crossbred birds may be more resistant to cecal coccidiosis than certain pure breeds.

The admittedly preliminary results reported in the present research note are

oculated with a suspension of *Eimeria tenella* suffered the same mortality and reduction of rate of gain in body weight as infected controls. The general problem of resistance to *E. tenella* infections is discussed.

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Antidote for ANTU.—Workers at the Army chemical center in Edgewood Arsenal, Md., have found that a sulfhydryl compound, 1-thiosorbitol, is an apparently suitable antidote for ANTU poisoning—acting to prevent the accumulation of fluid in the lungs.

A Case of Blastomycosis in the Horse

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THE RECENT report by Murphy and Drake¹⁴ on mycotic infection of the bovine udder has focussed attention on this condition and stimulated the publication of this report. Murphy and Drake's cases were those of *Trichosporon* infection. The following report deals with the blastomycosis involving the udder of a mare.

The term blastomycosis has been used indiscriminately to indicate practically all deep mycoses caused by yeastlike organisms. In human medicine, the term "European blastomycosis" has finally evolved to indicate *Cryptococcus neoformans* infection, but no specific entity can be ascribed to the term blastomycosis as it appears in veterinary literature. Because many of the European reports do not give sufficient cultural data or histopathologic descriptions, the exact identity of the diseases described remains obscure. This is true also of the report of blastomycosis in a horse from Japan,¹⁷ and of the bovine nasal blastomycosis reported from Australia.¹ A number of authors have described what appear to be cases of sporotrichosis or epizootic lymphangitis as blastomycosis. Schellner¹⁸ reported a case of mycotic granulomas involving the nasal cavities of a horse from Germany; and Frothingham⁶ a case from Massachusetts where the lungs of a horse were involved. These are among the few cases where sufficient data were included to enable an evaluation to be made. Both appear to be *C. neoformans* infections.

North American blastomycosis (Gilchrist's disease), or *Blastomyces dermatitidis* infection, has only rarely been reported in animals. The earliest report we have found is the canine case of Maximilian Herzog, M.D., of the Chicago Veterinary College, included in McLane's¹¹ article on the human infection in 1916. Subsequent cases, all in dogs, have been reported by Martin and Smith,¹³ Foshay and

Madden,⁵ Madsen,¹² Anthony,³ Seibold,¹⁰ Lacroix, *et al.*,¹⁰ and Riser.¹⁶ Lung involvement, grossly resembling tuberculosis, was the salient feature in all these cases. While cutaneous blastomycosis was the type first observed by Gilchrist,⁷ we have found only one report of this type of infection in animals. This is termed blastomycotic dermatitis by Kelser⁹ who observed it in a dog which subsequently transmitted the infection to two members of the owner's family. The so-called fungus dermatitis

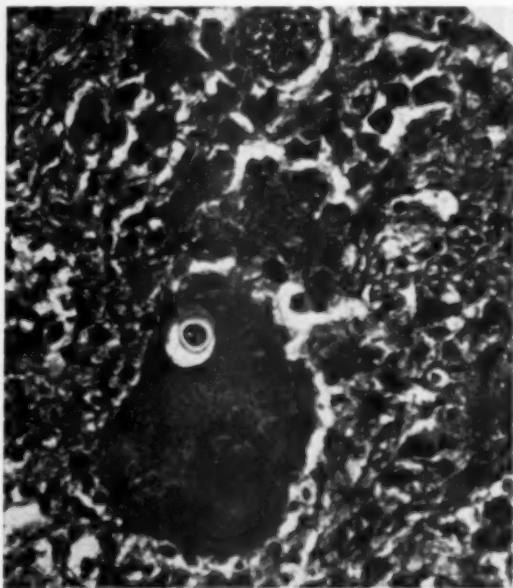


Fig. 1—A giant cell containing a phagocytized blastomycete. Hematoxylin and eosin. x 410.

reported in an abstract² of Foshay and Madden's case appears to be an erroneous interpretation by the abstractor of a regional feature of a generalized disease in which systemic symptoms were evident two weeks before the skin lesions appeared.

B. dermatitidis was isolated from the cases reported by Martin and Smith, Foshay and Madden, and by Madsen. The disease was diagnosed by finding the organism in tissue sections in the other cases. Seibold, and Lacroix

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et al. each reported 2 cases, so there are at least 11 cases on record of blastomycosis in dogs. A search of the available literature has failed to disclose a report of North American blastomycosis in a horse.

The subject of this report was a 6-year-old Belgian mare. In January, 1941, the owner noticed a thickening and several superficial abscesses in the skin around the anus and vulva. This swelling increased until it interfered with defecation, and one of us (J.B.B.) was called by the owner in March, 1941, to attend the patient. Malachite green was applied locally and was effective in drying up the abscesses temporarily. However, the thickening process extended to include the perineal region and, finally, the udder. Fly repellent was used on the open abscesses during the summer. Calcium sulfide was administered orally in August, 1941, and sulfanilamide orally beginning Oct. 1, 1941. Neither of these drugs seemed to influence the course of the disease, except tem-

time. She began to lose flesh rapidly in October and about a week ante-mortem her appetite declined and she perspired without exertion. What appeared to be a diffuse abdominal edema was noted during the last week of life. Since emaciation was progressing, euthanasia was carried out on Nov. 4, 1941.

On incision, a mass of granulation tissue about 25 cm. thick, 30 cm. wide, and 38 cm. anteroposteriorly was found to be involving the udder. The skin and subcutis were thickened posteriorly to the anus and anteriorly to the sternum. Multiple abscess forms were present throughout the involved tissues. Portions of the udder tissues were fixed and sent to the Division of Veterinary Medicine at Iowa State College for diagnosis. The necropsy was not carried further as the bacteriologic report had done nothing to raise suspicion regarding the true nature of the disease. Since the lesions had previously been cultured, no material was submitted for culture from the specimens secured at necropsy.

Sections were prepared and stained with hematoxylin and eosin. Study of these revealed a chronic infectious process resembling tuberculosis; many large giant cells were pres-

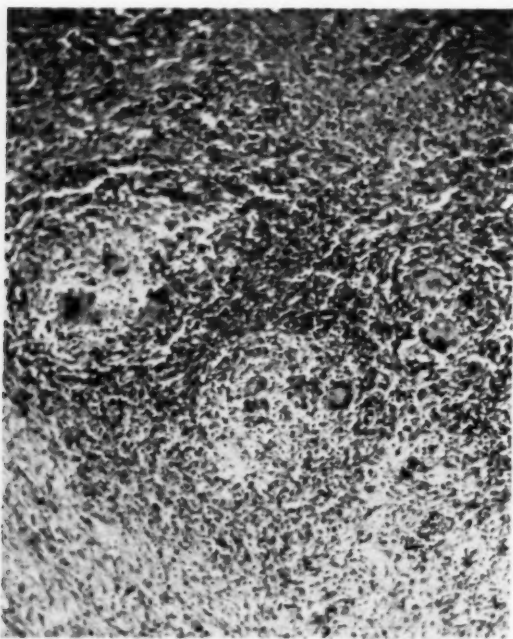


Fig. 2—Microabscesses and giant cells in the udder tissue. Hematoxylin and eosin. x 100.

porarily. The abscesses continued to erupt, drain, and then recede, to be replaced by new ones. Abscesses in all three of these stages were constantly present. When they broke, or when incised, they drained a sanguineous fluid which later became purulent. A sample of the pus was sent to a commercial laboratory. Their bacteriologist reported the presence of streptococci and staphylococci.

The mare remained in good nutritional condition from January 1941 until the first week in October and was worked throughout that

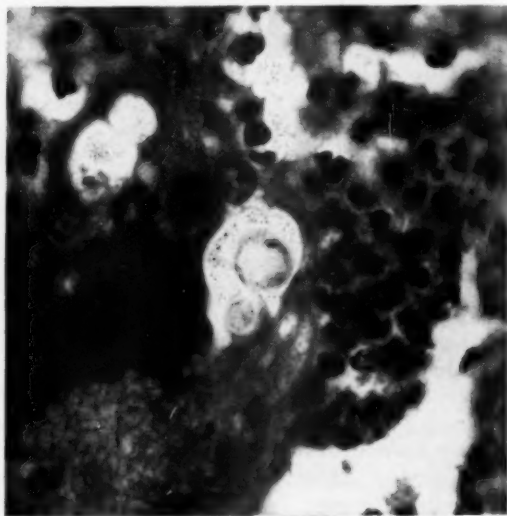


Fig. 3—A budding blastomycete. Hematoxylin and eosin. x 800.

ent (fig. 1). Minute abscesses were noted (fig. 2), composed mainly of polymorphonuclear neutrophils; numerous eosinophils were also present. Spherical bodies, 8 to 12 μ in diameter with a refractile wall, were found in some of the giant cells and were occasionally seen in the purulent foci. These bodies showed nuclei and a granular interior which did not entirely fill the capsule. Single budding was seen occasionally (fig. 3), but spores, hyphae, or multiple budding were not observed. The bodies were considered to be fungi, probably *Blastomyces*

dermatitidis, since they corresponded morphologically with those found in a human case which had been studied in this department.

Tissue sections from the udder were submitted to Roger D. Baker, M.D., Pathology Department, Medical College of Alabama, to whom we are indebted for the following report:

The slide from the udder of a mare shows the various features of North American blastomycosis. Probably the diagnosis is reasonably secure even in the absence of cultures. I have never seen blastomycosis in the horse before, but the organism and the tissue reaction are the same as in human cases.

DISCUSSION

Conant, *et al.*⁴ state that systemic blastomycosis in human beings usually arises from a primary focus in the lungs, and that the cutaneous form of the disease may exist for years without becoming systemic. The present case may be an exception to this general rule. On the other hand, it is possible that the primary source of infection was in the lungs and that the subcutaneous lesions were secondary. It is doubtful, however, whether a primary systemic infection could exist for nine months without causing symptoms of systemic involvement. The failure of the disease to respond to sulfanilamide therapy is in accord with the *in vitro* work of Keeney, *et al.*,⁸ and of Noojin and Callaway.¹⁵ They found that sulfanilamide, sulfapyridine, and the sodium salts of sulfapyridine, sulfathiazole, sulfadiazine, and sulfamerazine had no fungistatic effect on *Blastomyces dermatitidis* at levels which could safely be maintained in the blood stream.

It is interesting to note that two sows, which had shown skin lesions somewhat comparable to those in the mare, had died on the same premises four years previously. The mare had been purchased and brought onto the premises about the time that the sows died. In addition, this mare had lost a colt three years previously and had mastitis at that time. Whether this injured the udder and predisposed it to infection is open to conjecture.

From the diagnostic standpoint, this case emphasizes the assertion of Martin and Smith¹³ that pus samples should be smeared out and examined microscopically, and that culture mediums should be incubated at least two weeks in the diagnosis of blastomycosis. If this is not done and fungus infection is not suspected, the culture mediums are likely to be discarded after iso-

lation of the bacteria which commonly invade the suppurating foci shortly after they rupture.

Foshay and Madden⁵ found that the strain of *B. dermatitidis* which they isolated from a dog was morphologically and serologically identical with known human strains. They observed the owner's family for two months, during which no cutaneous or other disease developed. In the present case too, there was no evidence of infection of the owner, although he handled the mare throughout the course of her disease. The reason for this is not apparent, although it is known that some strains of *B. dermatitidis* are subject to variation in virulence (*e.g.*, Madden¹² could not infect a dog with a strain that had been isolated from a generalized case in another dog). There is sufficient evidence to date to warrant the addition of North American blastomycosis to the list of diseases common to animals and man. There is at present little evidence that the disease is transmitted from animals to man, but the possibility is one which should be considered.

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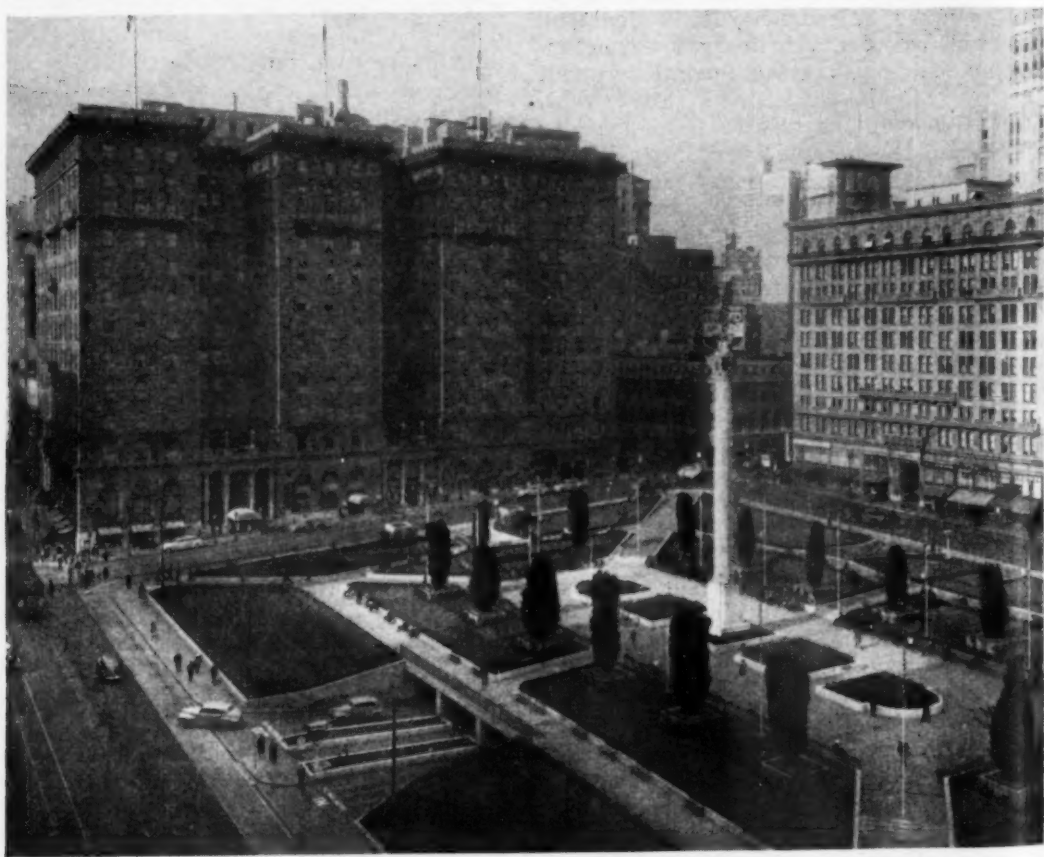
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Sulfaquinoxaline in Coccidiosis.—Sulfaquinoxaline, incorporated in the feed on an intermittent schedule of 0.05 per cent or on a continuous schedule of 0.0125 per cent, safely and effectively controlled *Eimeria tenella* and *E. necatrix* infections in over 40,000 chickens on a commercial broiler farm. Mortality was over 17 per cent in untreated birds, but only 1.13 to 2.17 per cent (depending upon dosage) in treated birds.—*Science*, Feb. 20, 1948.

Estrogens for Turkeys.—University of California experiments (*Feed Bag*, Feb., 1948) showed that although estrogen-pellet implantation gave a slight advantage in fattening turkeys, the average grade difference between treated and untreated birds was too slight to justify the expense of treatment.

Atomic Research on Fowl Leucosis.—Using radioactive phosphorus, University of California investigators are carrying on tracer experiments on the "big liver disease" of the fowl leucosis complex, according to a current news report. The project is a part of the University's cancer research program.



—San Francisco Convention Bureau

San Francisco's Union Square, showing cars emerging from the 1,500-car underground garage. The St. Francis Hotel is seen in the background.

NUTRITION

Cobalt in Animal Nutrition

The Nutrition Committee, Dr. C. C. Hastings, chairman, presents summaries of the more important contributions of the past year, to its knowledge, of the value of cobalt in animal nutrition. The abstracts were prepared by Dr. Jesse Sampson, Urbana, Ill., a member of the Committee.—THE EDITORS.

Symptoms of Cobalt Deficiency.—The symptoms are similar to those of general malnutrition. The animals become listless, lose appetite and weight, become weak and anemic, and finally die. A depraved appetite is frequently noted. While postmortem examinations reveal a low cobalt content in various organs, compared to the normal, response to cobalt feeding is the only clear evidence in the live animal that a lack of the element is the cause of the physical symptoms noted. In fact, some of the reports of cobalt deficiency are unconvincing because the troubles occurred on rations obviously deficient in other respects and because other nutrients were used along with cobalt to bring about a "cure." Seasonal occurrences of the symptoms and spontaneous recoveries also complicate the picture.

Attempts to produce the deficiency experimentally with diets adequate in all other respects have failed. Extensive attempts have been made with rats, guinea pigs, and rabbits. The latter species, for example, has grown satisfactorily for a year without deficiency symptoms on a diet containing less than one-fifth the concentration of cobalt required to maintain health in a sheep. Clearly, there are marked differences in quantitative requirements among species. In fact, it has been suggested, but without adequate proof, that a need for cobalt is limited to ruminants. Certainly our knowledge of the functions of cobalt, of the specific signs of its deficiency, and of the extent of the occurrence of the trouble uncomplicated by other deficiencies, would be greatly advanced by studies of the experimentally produced disease.—*Animal Nutrition* by L. A. Maynard. 2nd Edition. McGraw-Hill, New York. 1947: 149-150.

Ketosis in Dairy Cows.—"Twelve cases, diagnosed clinically as ketosis of the digestive type, were treated with cobalt sulfate. They received no other treatment during the period of cobalt administration, although several had been treated previously. Of these, 9 showed marked clinical improvement, although one relapsed to its former condition within a few days. Three cows showed no distinct improvement which could be attributed to the treatment."—Henderson, J. A.: *Ketosis in Dairy Cows. Cornell Vet.*, 37, (1947): 292-304.

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Cobalt Deficiency and Ketosis.—"The true form of ketosis in the area in which I practice responds readily to one 500-cc. injection of a 50 per cent dextrose solution administered intravenously.

"During the past three years, 306 cases of ketosis have been diagnosed by the use of the ketone test in my practice. Sixty per cent of these cases recovered after being treated with one intravenous injection of 500 cc. of a 50 per cent dextrose solution, 14 per cent recovered from two injections, the remaining 26 per cent have been problem cases which did not respond to dextrose and made it necessary to use a variety of other treatments. . . .

"I first used the cobalt treatment in March, 1946. I have used it since in cases that had not responded to one or two doses of dextrose intravenously. The results have been very good. However, some animals remain down for as long as seventy-two hours. It is for this reason that I decided to use cobalt intravenously. I first used 19 mg. of cobalt in 500 cc. dextrose solution on a 5-year-old Holstein-Friesian cow that was in excellent condition in April, 1947, and had been treated twice by a competent veterinarian who apparently used dextrose and vitamin B₁ with no suc-

cess. I treated the cow with dextrose on my first call, with no results. On the second call, I gave her an intravenous injection of the *cobalt in dextrose solution*, after which the animal immediately arose and started to eat and drink. Since that time, I have treated 16 cases in this manner with excellent results. In the future I plan to give *cobalt dextrose solution* routinely."—*Gingras, G. E.: Cobalt Deficiency and Ketosis. Haver-Glover Messenger, 27, (Nov.-Dec., 1947): 8, 9.*

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Cobalt Deficiency in Sheep.—"A paired experiment was carried out with lambs in an attempt to substantiate field studies which indicated a widespread cobalt deficiency in New Hampshire. Although, with very few exceptions, only borderline deficiency cases were encountered, the average gain in weight of the animals receiving cobalt was approximately two and a half times that of the controls. Differences in gain in weight appeared to be due to differences in feed consumption. Although blood counts were not found to be reliable for detecting borderline cases of this deficiency, analysis of blood serum and certain tissues for cobalt did appear to have potential value for this purpose.

"It is concluded that cobalt deficiency can result from feeding low cobalt hay such as is found in New Hampshire and that the effects of even a borderline deficiency are of considerable importance."—*Keener, H. A., Morrow, Percival and K. S.: A Study of Cobalt Deficiency in New Hampshire with Sheep. J. Anim. Sci., 7, (1948): 16-25.*

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Cobalt in Sheep Nutrition.—"Cobalt salts administered by mouth at the rate of 1 mg. of the element per head per day brought about a rapid increase in the appetite and body weight of cobalt deficient sheep. By comparison, injection of cobalt salts gave a much slower response. Thiamin injections also brought about a definite improvement in rate of gain in body weight and appetite.

Anemia was found to be a concurrent feature in the deficient animals. Administration of cobalt brought about a slow and often erratic hemoglobin response. Injection of cobalt had no greater value in the stimulation of hemoglobin formation over oral administration. Thiamin treat-

ment seemed to aggravate the anemia of the cobalt deficient lambs.

The livers of the deficient lambs were hypertrophied and high in fat content. Administration of 1 mg. of cobalt per day improved the condition of the organ but even after seventeen weeks, the livers of the animals thus treated were significantly heavier than those of the normal animals.

The cobalt content of the livers of deficient animals was very low, but could be brought back to the normal level after treatment for seven weeks with only 1 mg. of cobalt per day. The livers of the animals injected with similar doses of these cobalt salts had about ten times more cobalt than those of the latter group.

These data suggest that the physiologic rôle of cobalt in sheep is probably indirect. The effect upon appetite seems to be direct and that upon hemopoietic centers indirect. It is possible that the beneficial action of cobalt is linked with [the growth and development of those bacteria which are active in] the normal production of the members of the vitamin B complex in the rumen."—*Ray, S. N., Weir, W. C., Pope, A. L., Bohstedt, G., and Phillips, P. H.: Studies on the Rôle of Cobalt in Sheep Nutrition. J. Anim. Sci., 7 (1948): 3-15.*

Nutritive Value of Shark Meal.—Shark meal, being produced in increasing amounts in Florida and along the Pacific seaboard, is an excellent protein supplement (nearly 80% crude protein) in rations for dairy calves, chicks, and growing and fattening swine. It is also a rich source of calcium and phosphorus, a fair source of magnesium, and a trace provider of other important minerals, according to Florida investigators (*J. Agric. Res., May 1 and 15, 1948*).

Vitamin Influence on Hatchability.—Australian research showed that riboflavin deficiency, resulting in lowered hatchability, is apt to occur on rations containing a high percentage of grain or crushed grain. Other tests showed that the feeding of vitamin A supplements did not improve hatchability.—*World's Poultry Sci. J., Jan.-March, 1948.*

Nitrogen metabolism studies have shown that nitrogen administered orally in the form of amino acids is utilized better than when administered intravenously.

EDITORIAL

Veterinary Students and Practice Experience

The veterinary graduate who enters practice without a good understanding of the proper relationships between the practitioner and his clients works under a severe handicap. Various proposals have been advanced to bridge this gap in the development of practitioners from students.

The Ontario Veterinary College has taken a realistic stand in attempting to solve the problem by requiring that students who have completed the third year of the professional course must spend the summer vacation preceding the senior year with an active practitioner. This corrects a deficiency in an otherwise complete curriculum, and does it without delaying the time when the graduate may actually begin to practice as would be necessary under a system of internship following graduation. This is not to imply that the plan is an improvement upon, or even a substitute for, internship, but it will provide some of the needed training.

There are many junior students in the recognized schools of veterinary medicine who would welcome the opportunity of spending a part or all of the summer with a practicing veterinarian. The experience so gained would supplement the academic phase of their training, in such a way as to enable them to derive greater benefit from the clinical and ambulatory work of the senior year.

The veterinary profession would advance if each of its members could acquire this additional training and experience before the beginning of the senior year. This additional "know-how" regarding the contact between a practitioner and his clients, plus the intangible something which tells the "dumb" animals which serve as patients that, although this visitor is a stranger on the premises, he knows his way around with animals, can do much to enhance the acceptance and success of any professional man. The "bedside manner" is recognized as an important factor in the successful

practice of human medicine. It should be considered an equally important factor in the successful practice of veterinary medicine, because assuredly the patient and the owner appreciate the proper approach and resent a careless, inept, or rough administration of the surgical and medicinal needs of the veterinary patient.

The purpose of training of this type is seldom questioned. The value thereof is apparent to all. The manner of achieving it provides the crux of the problem. The training can be obtained only by making calls and being associated with animals and their owners. It can serve most effectively when the practitioner has only one student with him. It will benefit the student in direct proportion to the amount of time the practitioner will spend in guiding the approach to each situation and in explaining the reason for and the need of each step in the approach. This will take time, and it is probable that each call will take more time than the practitioner would require if he were traveling alone. On some calls, it will be possible for the student to perform a part of the necessary work and so lighten the work of the practitioner or shorten the time required to complete the call. However, this will not be true of most routine farm animal calls.

This is an important point to remember, because it will have a definite bearing on the financial arrangement between the veterinarian and the student assistant. Students always need money, and they expect to be paid for their time and effort. They must realize, however, that their presence is probably slowing down the practitioner, rather than helping to shorten his day or reduce his physical work. They must realize also, that almost never does their presence increase the income of the practitioner preceptor. And even though these factors of time, effort, and income did happen to balance reasonably well, the student must recognize and appreciate the

benefits to be derived from the experience of his preceptor—which should be far greater than any monetary factor involved.

The practitioner is urged to accept a junior student for training of this type. He can impart to the student valuable information about the art of veterinary practice, and thereby perform a service for the individual student and also for the profession. At the same time, he may obtain the newer information in the science of veterinary medicine. A review of the basic sciences, and an interpretation of technical facts in the light of their application to diseases of individual farm animals, will be of great value in rendering a more complete veterinary service to the community.

The deans of the schools of veterinary medicine will gladly furnish the names of available students. They will also help in forming compatible teams. Human nature being what it is, this factor alone may determine the success or failure of a program of this nature.

Position Open in Japan for Veterinarian

At present, there is one veterinary position open with the military government in Japan. This position is rated P-5, the base pay for which is \$5,905.20, augmented by a 25 per cent overseas differential, making a total annual salary of \$7,381.50.

The requirements are: graduate from approved veterinary school; minimum of three to four years practice, preferably with considerable experience in meat inspection and dairy inspection work.

The family of the veterinarian will be allowed to join him within about four months after his departure. His services would be required for a minimum of two years.

For further information, please write: Special Staff, United States Army, Civil Affairs Division, Personnel and Training Branch, Washington 25, D. C.

The Fear of Overcrowding.—Instead of posting warnings about the prospect of overcrowding the veterinary profession why not start an all-embracing movement to put D.V.M.'s in positions naturally intended for them? Two to three times as many veterinarians as there now are would not be too many.

Ladino Clover

Although introduced into the U.S.A. in 1903 (from northern Italy), Ladino clover gained but sketchy popularity until the present decade, excellent as it is as a pasture grass. It was first tried in the East (New England) but was quickly discarded. The Wisconsin Agricultural Experiment Station, after giving it a trial in 1916 as a substitute for alfalfa, did likewise pronto. The Idaho station was more successful. In the mountain country, it responded well on good soil, yielding a lush, knee-high, and protein-rich pasture. Since 1942, through instructions obtained from the Idaho station, this perennial legume gained considerable popularity in the East and Middle-west. It grows rapidly by means of surface runners, or creeping stems (12 to 18 in. long) of short joints and nodes. It has larger leaves than the other clovers (red, white, alsike). A single stem may produce upward of ten runners so that even a sparse stand can grow a dense, uniform carpet. Ladino needs fertile, moisture-retaining soil, and it stands water somewhat better than alfalfa.

There is romance in its present rapid gain in popularity for, as of this date, Ladino is being widely grown in the northwestern Pacific Coast, the Southern, and Central states; in fact, it is adaptable to all of the U.S.A. Oldtimers will recall the writings of J. Wing (better known as "Alfalfa" Wing) who devoted years to the defense of alfalfa as a valuable hay for the American farm. Ladino is undergoing the same transition. The techniques of its production are becoming widely comprehended, and so is its nutritive value. As one authority puts it, Ladino is to pasture what alfalfa is to hay.

Though this is an agrarian rather than a veterinary subject, acquaintance with this coming legume is a thing desired. Even the farmers have much to learn about its whims and worth. To us, it is a lush, palatable legume, rich in protein, minerals, and vitamins and has low fiber content that ought to make it a favorite for fowl and swine, as well as the herbivores of the farm and ranch.

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The Registry of Veterinary Pathology from the Practitioner's Viewpoint

Through the medium of the radio and literature, people have become familiar with the advancement of medical science. Largely because of this knowledge, they are demanding of the veterinarian a more definite diagnosis. They no longer are satisfied with general terms, and they realize that effective therapy cannot be administered on this basis. Legally, the veterinary profession is held responsible for an accurate diagnosis.

It is the further duty of the veterinarian to serve the public in the most competent manner, by treating animal diseases with the most effective therapy available. It is also his duty to prevent the spread of contagious diseases, and to guard the public health. Science has advanced to such a degree that technical facilities for an accurate diagnosis must be used by the veterinary practitioner to carry out all of these duties.

The successful practice of veterinary medicine depends upon three main factors: (1) the training and ability of the individual practitioner; (2) the availability of technical facilities for a scientific diagnosis; and (3) the proper use of drugs and biological products. During the past twenty-five years, the veterinarian's armamentarium, consisting of instruments and specific therapeutic agents, such as biological products, antibiotic agents, chemicals, and x-ray, has rapidly become complex. Commercial houses, supplying the veterinarian with drugs and equipment, are helping to keep him informed about their use. To use these aids in practice requires a much more accurate diagnosis than was necessary twenty-five years ago.

The colleges are thoroughly training students, especially in the basic sciences. However, the practitioner, even if he possessed all the complex equipment necessary for technical examinations, would not be adequately compensated for his work by the fees he obtains for his services. In recognition of this situation, the Registry of Veterinary Pathology provides a centralized laboratory through which pathologic specimens can be processed by a competent

group of specialists using modern facilities. This consultative service is offered in exchange for the tissues submitted, which are then used in research and in teaching comparative pathology. This activity is sponsored jointly by the American Veterinary Medical Association and the Army Institute of Pathology.

UNUSUAL AND OBSCURE CASES

The obscure, unusual cases which one practitioner sees amount to a small, but very important percentage of his practice. These are cases which obviously require technical assistance in diagnosis and therapy. Investigation of these cases is particularly important when one considers that into this group fall the rare contagious diseases which may be of great importance to public health, and those cases which previously have been unreported or unrecognized. The Registry of Veterinary Pathology is prepared to assist in clarifying these cases, and to provide a centralized laboratory for the recognition of the diseases seen less frequently. The value of such service is also very great from the standpoint of education. The practitioner who avails himself of this service, at no cost to him except his time, will soon find that his ability to make accurate clinical diagnoses will develop apace. It is obvious that this function as an educational clearing house for the dissemination of information, as well as the purely technical service of making the diagnosis, offers a convenient method whereby the local practitioner can keep up with modern veterinary developments.

NEOPLASTIC DISEASES

It is not only the obscure or unrecognized case that today requires the facilities of such a laboratory. In dealing with valuable horses, cattle, and dogs, the field of neoplasms is gradually enlarging, due to better diagnosis and the increased age of the patients. To the veterinarian, these can no longer be regarded as lumps or tumors and removed on a guesswork basis. With the recent drive for the control of cancer, this

problem is being placed squarely before the layman, and the techniques of diagnosis and treatment are becoming common knowledge. The veterinarian can no longer shirk the responsibility of acquiring some knowledge of neoplastic diseases, or the responsibility of using all the facilities available to increase his knowledge of this important subject so that he may accurately diagnose and prognose these cases. The Registry of Veterinary Pathology is especially interested in this problem. In the collection and study of neoplastic diseases affecting domestic animals, the veterinary practitioner can make a very real contribution to the fight against cancer. It is plain that a thorough understanding of animal cancer is necessary for the research worker dealing with experimental cancer in animals. Veterinarians in practice, who see large numbers of these cases, are in a position to make a real contribution to this study. From the standpoint of the client-doctor relationship, an awareness of this pressing problem, and the exploitation of the facilities provided, is good public relations.

Beyond the value of the Registry to the individual practitioner, it is now, and will be in the future, of even greater value to the profession as a whole. The development of a national registry provides for the compilation of data necessary to learn the nature, and compute the incidence, morbidity, and mortality, of the various disease entities, and by centralization, will greatly assist in the standardization of terminology and diagnosis. This will be of particular benefit to the veterinarian in practice and in public health work, as well as to future students of veterinary medicine.

In conclusion, we believe that the success of a veterinarian in treating animals, and his relationship with the public, depend on his ability to intelligently diagnose diseases of animals and to administer therapeutic agents to restore health. The science of diagnosis has lagged far behind the development of therapeutic agents and, because of this fact, the utilization of the facilities of the Registry of Veterinary Pathology will be a great aid to the practitioner, both educationally and economically, in attaining and carrying out a successful practice in veterinary medicine.

S/ C. P. ZEPP, SR., and C. P. ZEPP, JR.,
New York City.

International Educational Interchange and Research As Provided by the Fulbright Act

Occasional inquiries are received from American veterinarians regarding opportunities for study or advanced research in institutions of higher learning abroad. The following summary, prepared by the National Research Council under the date of March 18, 1948, describes the general provisions of the Fulbright Act and gives the names of the agencies in the United States to which inquiries may be addressed.

The following summary has been prepared in response to a growing interest in the Fulbright Act and in particular to the opportunities it affords in all fields of teaching and advanced research in institutions of higher learning.

The Fulbright Act (Public Law No. 584) authorizes the Department of State to use a portion of the foreign currencies resulting from the sale of surplus property abroad for purposes of educational interchange and activities with foreign countries.

At present, agreements have been signed with only two countries—China and Burma; but negotiations are in progress with the following: Australia, Austria, Belgium, Czechoslovakia, Egypt, Finland, France, Greece, Hungary, Iran, Italy, The Netherlands, The Netherlands East Indies, New Zealand, Norway, the Philippines, Siam, Turkey, the United Kingdom, and it is expected that other countries may be added to the list.

It should be stressed that since the money available is only in foreign currencies and is not convertible to American dollars, individual arrangements must be made for each American participating in the program for such dollar balances as he will require to meet his family needs and other obligations in the United States during the period of his absence abroad.

While the term "educational interchange" may be interpreted very broadly, the following amplification will serve as a more useful guide to the types of activities envisaged:

Aid in international reconstruction by assisting foreign countries to secure the services of Americans with specialized knowledges and skills and to assist the peoples of these countries to understand the American people, their achievements, and their ideals.

Provision for Americans to study, teach, and conduct research abroad in connection with American schools or with institutions of higher learning, and to add to the American store of knowledge of foreign areas, peoples, and cultures.

Opportunities for a limited number of foreign students to study in American institutions abroad and to assist foreign students and

teachers to engage in educational activities in the United States by paying for their transportation wherever foreign currencies can be used for this purpose.

Under the terms of the Fulbright Act, a Board of Foreign Scholarships is charged with the responsibility of selecting individuals and institutions which will participate under the act and with the supervision of the exchange program. The Board is composed of individuals representing a wide range of educational and cultural interests in addition to representatives of the government agencies most concerned.

The Board has delegated responsibility for preliminary screening of applicants for grants to three agencies:

1) The Institute of International Education for those wishing to study in foreign institutions, primarily at the graduate level;

2) The Office of Education for those wishing to teach abroad in national elementary and secondary schools;

3) The Conference Board of Associated Research Councils for those wishing to teach, lecture, or offer technical instruction in connection with institutions of higher learning or to pursue studies and research abroad at the post-doctoral level. The Conference Board will also screen applicants for teaching positions in American elementary and secondary schools abroad.

For discharging this responsibility, the Conference Board has established a Committee on International Exchange of Persons with offices

at the National Academy of Sciences Building, Washington, D. C. All inquiries concerning the exchange of professors, lecturers, specialists, and research scholars at the post-doctoral level, and inquiries concerning opportunities for teaching in American primary and secondary schools abroad including requests for application forms should be addressed to:—

The Executive Secretary,
Committee on International Exchange of
Persons,
Conference Board of Associated Research
Councils,
2101 Constitution Avenue,
Washington 25, D. C.

Inquiries relating to graduate student exchanges should be addressed to:—

Institute of International Education,
2 West 45th Street,
New York 19, N. Y.

All inquiries relating to national primary and secondary school teaching should be addressed to:—

The Office of Education,
4th and Independence Ave. S.W.,
Washington, D. C.

Inquiries relating to exchanges other than those concerned with the Fulbright Act should be addressed to:

The Division of International Exchange of
Persons,
Department of State,
Washington 25, D. C.

Aerial view of downtown San Francisco—
San Francisco-Oakland
Bay Bridge in the right
center.



—San Francisco Convention Bureau

CURRENT LITERATURE

ABSTRACTS

Infectious Abortion in Mares: Vaccination Studies

Living cultures of *Salmonella abortus equina* were intravenously introduced with a dosage of 1 to 2 mg. into 6 mares prior to pregnancy.

Two of the mares were inoculated with a low virulent strain, and the other 4 with a highly virulent strain.

When pregnancy had advanced over six months, each vaccinated mare was designated for an experiment with control animals. The experimental test infection was attempted by oral introduction and simultaneous intranasal instillations of both a broth culture and gastric contents of an aborted fetus.

The mares which had been vaccinated intravenously with a highly virulent culture of abortion bacilli produced an appreciable immunity to infectious abortion. Apparently, the reaction to vaccination itself, at least in healthy animals, can be disregarded.—[K. Kasai and K. Hirato: *Experimental Studies on Infectious Abortion in Mares. VII. The Vaccination with Live Cultures of Salmonella Abortus equina for the Prevention of Abortion. Jap. J. Vet. Sci., 2, (1940): 20.*]—K.F.B.

Rabies Transmission by Bats

Rabies is being spread in cattle by *Desmodus rotundus*, the hematophagous bats which bite cows and other animals. The Department of Agriculture of the State of Rio Grande de Sud, Brazil, has been engaged in a program for eradication of the rabies and of the bats which are spreading the disease. Most of the cases are of the paralytic type, usually beginning in the rear quarters, although a few are furious. The animals die four or five days after the first symptoms are observed.

A carbolized vaccine was prepared according to the technique of Umeno and Dei as modified by Silvio Torres, but when injected intramuscularly into cattle the vaccinated animals died in eight days after the appearance of symptoms. Virus was recovered from the brain of a vaccinated animal, and the Ammon's horn of the brain showed atypical Negri bodies.

Live virus was also recovered from such experimental animals as rabbits, guinea pigs, and white mice.

The hematophagous bats are easily distinguishable from the harmless or useful bats. The former lack the distinct interfemoral

membrane which characterizes the latter.—[*The Transmission of Rabies by the Intramuscular Injection of Phenolized Vaccine. Dr. Ouatubino and Dr. Cleto Duarte. Boletim Agronomico, Ns. 107-108, November and December, 1945.*]—A.M.-A.

The Antigen of Pfeifferella Mallei

The author elaborated on the quantitative relationships of antigen and antibody combinations in the complement fixation test for glanders. Observed were two different reaction zones determined by the combinations of various dilutions of antigen extracted from *Pfeifferella mallei* after Schultz' and Schubert's method, and various dilutions of the serum obtained from naturally infected horses, artificially immunized rabbits, and horses.

In the complement fixation test performed with Schultz and Schubert's antigen, they recognized two phases of reaction zone, that is, the A and B phases.

The A phase showed the prozone phenomenon in the excess doses, and the maximal complement fixation in the suitably decreased dose of antigen. The B phase revealed the maximal complement fixing value according to the decrease of antigen dose.—[T. Nisi and Y. Sibuya: *Studies on the Antigen of Pfeifferella Mallei. I. Observation of Reaction Zone Determined by the Antigen-Antibody Union in Complement Fixation Tests. Jap. J. Vet. Sci., 2, (1940): 153.*]—K.F.B.

Trichomonas Foetus Infection and Bovine Reproduction

Heifers and cows previously uninfected with *Trichomonas foetus* are highly susceptible to this pathogenic protozoan. Infection usually confers a relative degree of temporary resistance to reinfection.

Trichomoniasis in females is essentially self-limiting. The occurrence of *T. foetus* in the vagina and the persistence of infection are influenced by the sexual cycle and by acquired immunity.

Early termination of pregnancy with early return to estrus and continuing catarrhal metritis is the most common consequence of trichomoniasis in the female. Abortion of the conceptus during its embryonal or early fetal state with return to estrus, production of frank trichomonad pyometra and static condition of

the estrual cycle, and successful gestation despite concomitant infection also may occur.

The results of *T. foetus* infections upon pregnancies vary in accordance with the activity of the infections. Active infections ordinarily terminate pregnancies early. Less active infections, usually limited by previously acquired immunity, may not prevent the conceptus from developing to an advanced stage. Thus, abortions of recognizable embryos and fetuses, pyometras, and successful gestations despite infections are more likely to occur in cows experiencing reinfections—in herds where trichomoniasis has been present for several years.

It is concluded that infected females may be considered free of *T. foetus* and safely allowed coitus with uninfected bulls if they have completed (a) a normal pregnancy, (b) a ninety-day postpartum rest period, and (c) three periods of estrus.

Nonvenereal transmission of trichomoniasis under natural conditions is very rare. Isolation of infected animals is not essential in controlling the disease.

Such objective symptoms as genital discharges and abortions are of limited importance in practical diagnosis of trichomoniasis not only because they usually pass unnoticed, but because such occurrences are relatively infrequent.—[David E. Bartlett: *Trichomonas Foetus Infection and Bovine Reproduction*. *Am. J. Vet. Res.*, 8, (Oct., 1947): 343-352.]

Tick Survival in Winter

Ticks were observed, during the winter, on stabled animals in the Khabarovsk region of Eastern Siberia (the latitude is approximately that of Seattle, Wash.). Of 307 cattle, horses, sheep, and reindeer examined during a ten-year period, 63.5 per cent were infested. The ticks were adults in a fasting state, but became active when removed to warmth and light. The most common species was *Dermacentor silvarum*, with a few *Haemaphysalis concinna*. The number of ticks per animal varied from 2 to 50, usually located on the ears. It is recommended that animals be examined before shipment in order to prevent the spread of ticks and piroplasmosis during the winter.—[A. F. Kasyanov, *Khabarovsk Regional Vet. Bact. Lab.: Winter Parasitism of Domestic Animals by Ticks of the Family Ixodidae in the Khabarovsk Region*. *Veterinariya*, 24, (Oct., 1947): 14.]—R. E. H.

Pneumoencephalitis Vaccine Developed in Palestine

Using a so-called Haifa strain of pneumoencephalitis virus, staff workers of the Haifa (Palestine) veterinary service produced a highly dependable live virus vaccine that gave

solid immunity within seven days to pullets 8 to 10 weeks of age, to laying birds, and to 10-week-old turkey poults. Moreover, the vaccine, given intramuscularly or subcutaneously, had no adverse effect on productivity or feed consumption and it did not cause birds to molt. According to the investigators, passing of the Haifa strain through embryonated duck eggs robbed the virus of its ability to produce systemic reactions. On the other hand, another strain tested (Mukteswar strain, passed through chicken eggs) was comparatively less effective in preventing infection and it produced marked reactions. Among 491 young pullets and laying birds and 600 poults receiving the Haifa vaccine, only 1 pullet developed nervous disturbances and 1 laying bird became paralyzed.—[A. Komarov and Leah Goldsmid: *The Use of Live Viruses in Palestine for the Vaccination of Poultry Against Newcastle Disease*. *Cornell Vet.*, 37, (Oct., 1947): 368-372.]

A Survey of Literature from Germany

The following is a survey of the *Schweizer Archiv Tierheilkunde*. Dr. A. G. Karlson, Rochester, Minn., prepared the abstracts.—The Editors.

Statistics on Dystocia in Goats.—Fifty cases of dystocia in goats are considered in this report [87, (Feb., March, 1945): 57-65, 83-90] by E. Wyssman. Seven cases were triplet births and 21 were twin births. Three and five-tenths per cent of the fetuses were in transverse presentation, 15.3 per cent in posterior presentation. The remainder were in anterior presentation. The head was deviated in 31.5 per cent of fetuses presenting anteriorly in single births. In twin births 23.1 per cent had malposition of the head. Flexion of the forelimbs was seen in 18.75 per cent of the single births and 10.5 per cent of the double births. Flexion of the limbs together with deviation of the head was seen in about 6.2 per cent of the single births. In cases of posterior presentation, 80 per cent of the single births were complicated by flexion of one or both hind legs. Torsion of the uterus, putrefaction of the fetus, emphysema, maceration, hydrocephalus, and a deformity of the vertebral column were other causes of difficult parturition in goats.

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Studies on the Clinical and Pathological Appearance of Methaldehyde Poisoning in Dogs.—This material, used as solid fuel, has been known to cause poisoning in dogs and children. It is a polymer of acetaldehyde and itself is not toxic but, when depolymerized in the intestinal tract, it is absorbed and gives rise to symptoms.

Doses of 0.65 or 0.85 Gm./kg. of body weight caused death several hours after symptoms

appeared, which occurred within thirty minutes in the dog receiving the larger dose and two and one-half hours in the other.

According to M. Leuenberger, the animals showed excitement, convulsions, exophthalmos, and paresis especially of the rear legs. The postmortem examination revealed hemorrhagic gastroenteritis which was most prominent in the intestine. There were hemorrhages in the bladder. Histologically, there were severe degenerative changes in the parenchymatous organs and edema of the lungs. The spinal fluid had an increased number of cells and globulin. When 8 cc. of spinal fluid were removed prior to death, the exophthalmos subsided. The brain showed marked perivascular and pericellular edema [87, (Sept., 1945):357-373].

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Leptospirosis. An Outbreak of Stuttgart Disease in Zurich During 1944-1945.—During the summer of 1944, the number of cases of leptospirosis began to increase [88, (April, 1946): 161-181]. By the end of 1945, a total of 137 cases had been seen in the small animal clinic at Zurich. The presenting symptoms were extreme exhaustion, loss of appetite, and vomiting. About half of the patients seemed to have muscular pain and moved as little as necessary. Great thirst was commonly seen. The conjunctiva was congested. The buccal mucosa often showed petechiae and small ulcers. The breath had a disagreeable sweetish odor. Icterus was seen in only 6 cases. There were six times as many males as females which is three times the ratio of males normally admitted to the small animal clinic. Only 72 animals survived. Penicillin was used in a few cases and seemed to be the best treatment. The most common finding at necropsy was hemorrhagic gastroenteritis. About 20 per cent of the cases had ulcers and necrotic areas in the mouth. There were petechiae of the lungs, liver, and kidneys. Positive blood cultures were obtained in 9 cases during the fourth to seventh day of illness. In 30 cases, blood cultures were sterile during the latter stages of the disease. Of 79 cases examined serologically, all agglutinated *Leptospira canicola*. Sixty-one of these also reacted with the *L. icterohemorrhagiae* strain but in lower dilutions. Positive tests were not obtained until the seventh to the fourteenth day of illness. Tests done on specimens from 80 dogs with other diseases were negative. Transmission experiments with pure cultures, blood, urine, kidney tissue, and gastric contents from proved cases were negative although the recipients did develop specific agglutinins.

Toxic Liver Dystrophy

Eight outbreaks of poisoning in horses, oxen, and sheep were diagnosed clinically and pathologically as toxic dystrophy of the liver.

The causative agents were: molds (*Erysiphe taurica*, *Fusarium rostratum*, *F. heterosporum*, *Cephalosporium spp.*), fermented vetch (*Vicia sativa*), African rue (*Peganum harmala*), a bean caper (*Zygophyllum falago*), and anthelmintic doses of carbon tetrachloride (40 to 50 cc. for a horse).

Treatment was effective if begun in the early stages of the disease before the establishment of nervous symptoms. A 10 per cent solution of calcium chloride, 150 to 200 cc., and a 25 to 30 per cent solution of glucose, 400 to 500 cc., were administered intravenously. Insulin, 50 to 60 units, and ascorbic acid were given at the same time.—[I. P. Zapadnyuk: *Toward the Study of the Etiology and Pathogenesis of Toxic Dystrophy of the Liver in Domestic Animals. Veterinarnya*, 24, (Oct., 1947):34-40].—R. E. H.

A Survey of Literature from Holland

The following is a continuation of a survey (see May, 1948, JOURNAL p. 401) *Tydschrift voor Diergeneeskunde*. Dr. Chas. H. Haasjes, Shelby, Mich., prepared the abstracts.—The Editors.

Embryotomy in Cattle Practice.—The author, J. Van der Veen, says [72, (Jan. 15, 1947): 45-48] that when a veterinarian asserts that many experienced laymen are better obstetricians than he is, that gentleman is lazy, and he cannot successfully argue that he does not lack ambition. The author also holds that the statement that bovine obstetrics is a dirty job and that it takes too much time reflects upon the person making the assertion. A veterinarian who has equipped himself with rubber trousers and an obstetrical shirt, and one who has trained himself to make good use of the fetotome, can do good work, do it quickly, and then clean up in a few minutes.

The author warns that when obstetrical work is turned away much other practice goes with it, that good embryotomy and good surgery well done improves the practice and adds to the prestige of the veterinarian, and that while the professional man should dress neatly and keep clean, it is no disgrace to work and occasionally get dirty. The disgrace lies in being unnecessarily dirty and in failing to clean up promptly upon completion of the work.

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Streptococcal Infections in Dogs.—Beta hemolytic streptococci were isolated from the blood and organs of a bitch which had been nursing 5 puppies. During life, she showed symptoms suggestive of hemorrhagic septicemia and jaundice. The autopsy, as reported by J. Verlinde, J. Winsser, and A. Kret [72, (Jan. 15, 1947): 49-54], disclosed swelling of the spleen and multiple necrotic areas in the liver. Beta hemolytic streptococci were also isolated from small abscesses in the lungs of a

dog which had shown spontaneous hemorrhages or hemorrhagic diathesis, but in which it was not possible to demonstrate a bacteremia. *Alpha* hemolytic streptococci were isolated from the kidneys of a dog which had suffered from uremia in the course of sub-acute interstitial nephritis.

• • •
Commemoration Number.—The two issues of December, 1946 (Vol. 71), were combined into a single journal commemorating 125 years of veterinary education in The Netherlands. Dr. L. Seekles, president of the faculty of the Government University at Utrecht, sounded the keynote in his address, "Serving and Guiding." C. Tenhaeff discussed the laws and practice acts; H. E. Reeser, Sr., the operation of the government serum plant; H. S. Frenkel, the state veterinary research institute; J. Winsser, small animal veterinary service; R. Van Santen, the development of the meat inspection service; S. Sturman, milk hygiene; J. Grashuis, the feeding of large animals; Jacob Jansen, poultry diseases; W. Hiddema, laws for animal husbandry; C. Kraneveld, veterinary investigations in the Dutch East Indies; J. Frickers, research in Surinam; and there was a resumé of the formation and development of the Student Veterinary Association from 1921 to 1946. As a slogan for the compilation, and following the keynote speaker, the editors suggest: "Know your time, know your place, know your work."

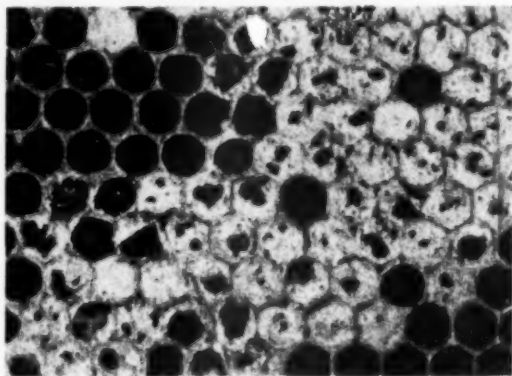
• • •
Erysipelas Trypaflavin Vaccine.—A trypaflavin swine erysipelas vaccine prepared according to the method described by Kondo and Sigmura [*Jap. Soc. Vet. Sci.*, 11, (1932) and 14, (1935)] proved highly effective in mice. L. DeBleeck and Jacob Jansen report [71, (Oct. 15, 1946): 804-807], that it protected 12 of 14 in 1 experiment while 13 controls all died. In another experiment it protected all 9 mice vaccinated while all 10 control animals died. The vaccine also protected 2 pigs against an exposure which produced typical swine erysipelas in 1 control pig.

• • •
Tetany in Calves.—A form of tetany, probably differing from that found in North America, is described by W. v. d. Berg [71, (Nov. 1, 1946): 832-841]. It is characterized by stiffening and cramping of the muscles, convulsions, blindness, a crying bleat, anemic conjunctiva, grinding of the teeth, and wildly staring eyes.

At autopsy, the muscle fibers were drier than usual but edema was present between the muscles. The optic nerve, the brain, and the blood chemical analysis were normal. Deficiency of vitamin A was ruled out, and calcium gluconate was valueless in treatment. One case responded to administration of hydrochloric acid in water.

Strongyloidosis in Horses.—When horse feces were incubated at 35 C., the first larval stage was attained by *Strongylus* eggs in ten hours, in an experiment conducted by P. Wagenaar Hummelinck of the Institute for Parasitic Diseases at Utrecht [71 (Nov. 1, 1946): 842-835]. Raising the temperature to 40 C. stopped the development. Lowering it to 18 C. lengthened the time to one and one-half days, while at 8 C. this stage was reached in twelve days, and development stopped at 3 C.

• • •
Horse Chestnut Poisoning of Bees.—May sickness is a term used loosely to cover a variety of disorders in bees. Some of these are



Honeycomb showing poisoning from bees feeding on horse chestnut trees. The empty cells contain dead bees.

toxic in nature, and it is believed that the case described by A. A. Velthoen of the Government Serum Institute [72, (Jan. 1, 1947): 18-21] was caused by pollen from horse chestnut trees. Reports in the literature indicate that similar conditions occur when bees visit other members of the Ranunculaceae.

• • •
Immunity to Swine Erysipelas.—The veterinary literature offers few facts, and little agreement, regarding the nature of immunity to swine erysipelas caused by *Erysipelothrix rhusiopathiae*.

Presence of exotoxins in broth cultures must be low, says F. De Moulin of the Government Serum Institute in Rotterdam [71, (Oct. 15, 1946): 792-804], since it can be demonstrated only by evaporating 24-hour cultures to 10 per cent of their original volume and then injecting the concentrate into mice. The severe reactions often produced in horses by injection of large quantities of broth culture, probably are caused by anaphylaxis rather than by toxemia. The serum of actively immunized horses contains opsonins which stimulate phagocytosis. Antioptionins are not found in broth cultures.

An extract of leucocytes from a sterile abscess on a hyperimmune horse appeared to

contain a substance which destroyed erysipelas organisms growing on the surface of agar. It also possessed some opsonic activity. An extract of normal leucocytes did not show such activity. Swine erysipelas antiserum has bactericidal powers, as demonstrated by the small-plate method.

Aggressins are found in broth cultures after they are at least two weeks old, and they neutralize the bactericidal activity of immune serum. Old broth cultures should be added when hyperimmunizing horses, in order that antiaggressive qualities may be present in the antiserum. Complement is needed to produce bactericidal activity, and may be produced in pigs by simultaneous vaccination with culture and antiserum.

More study is needed of the relationship of complement to vitamin K, to anomalies in the bones and kidneys, to the endocrine system, and to the vegetative nervous system.

• • •

Reclamation of Flooded Pastures.—Cattle pastured on land flooded by invading Germans in 1939 and 1940 developed pica, believed to be due to copper deficiency in the clay soil. Although no copper deficiency was found on analysis of the soil by H. J. Gerritsen at Bergharen [71, (Sept. 15, 1946) : 709-720] the most favorable response of vegetation and cattle was secured by applying copper slag flour (CSF) in varying amounts. This soil treatment resulted in more pasture days per season, while, at the same time, the blood of the pastured cattle increased its copper content from a low of 62 gamma/100 cc. to a normal of 96. As the amount and quality of forage improved, and the blood copper values returned to normal, symptoms of depraved appetite disappeared and milk yield increased to more than double its volume.

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Amyloid Nephrosis in Cattle.—Large, pale kidneys in cattle are so common in The Netherlands that the author, A. W. A. Bos, Director of the Abattoir at Waalwyk, suggests examination for albuminuria as the first step when a cow has diarrhea [71, (Oct. 1, 1946) : 741-751].

A study of the pathogenesis of the condition indicates that it begins as a deposit of amyloid material on the endothelium of the capillary vessels of the glomeruli, and that it is widely distributed through the affected kidney. There is swelling of the endothelial cells which produces a characteristic (shrub shaped) deformity of the glomeruli, involvement of the membrana propria, and a deposit of amyloid substance between the epithelial tubes. Degeneration of the tubules is secondary, and the so-called inflammatory symptoms develop after destruction of the nephrones.

BOOKS AND REPORTS

Identification of Parasites

Not since 1922 when Maurice C. Hall wrote "Diagnosis and Treatment of Worm Parasites" and "Parasites of Swine" with graphic illustrations, has a veterinary book reviewer been as justified in lavishing praise on a needful piece of literature as one finds occasion to do in behalf of the second edition of "Identification and Life Cycles of Parasites Affecting Domestic Animals," which The Ohio State University has just published. The booklet is a reminder of the progress the American veterinary service has made in the field of clinical parasitology. Unbelievable as it may seem, it was not until after World War I that veterinary practitioners saw the first pictures of worm eggs which had been kept in the seclusion of research laboratories. Although there had long been a voluminous literature on ecto- and endoparasites of livestock and the damage they inflict, parasitology rarely appeared as a subject on curriculums of the colleges until Hall, Nighbert, and their successors in the Zoölogical Division of the BAI began to chortle well-deserved criticism of the neglected science. They were following the leads of Cooper Curtrice, Ransom, and Foster and kept hammering away until their brilliant researches caught the eye of the inadequate and poorly subsidized chairs of parasitology. One cannot review a book on veterinary parasitology without pointing out and praising the developments of the last twenty-five years as is so well shown in this remarkably revealing booklet. Not so long ago, a downstate Illinois practitioner wrote that he was finding strange looking things in the feces of dogs, horses, and cattle and he thought he should have a microscope to enable him to tell what sort of "cide" his patients needed. Today, microscopy of feces, blood, urine, skin scrapings, and exudates is as common as the use of the "hypo." For that, credit the parasitologists and their pictorial works.

The authors divide their materials into examination of (1) feces, (2) skin scrapings, (3) ectoparasites—ticks, lice, fleas—, (4) urine, and (5) parasites of horses, cattle, sheep, swine, dogs, cats, and poultry. There are two pages of reference and collateral reading and a good index. The revised edition contains 84 new photographs.—[*Identification and Life Cycles of Parasites Affecting Domestic Animals*. By F. B. Kouts and R. E. Rebraster, Department of Veterinary Parasitology, College of Veterinary Medicine, The Ohio State University. 104 pages. 90 pages of illustrations. Board cover. The Ohio State University Press, Columbus. 1948. Price not given.]

Physiology of Domestic Animals

A text written originally for the use of students in veterinary medicine and animal husbandry, this book has (through its six revisions) gradually included more and more information of value to the practitioners of veterinary medicine. Each revision has added new chapters, new paragraphs, and new interpretations of the rapidly expanding knowledge of physiology.

This sixth edition represents extensive revision and rearrangement of text material, and many new illustrations appear. The book is logically broken down into nine parts, and each of these in turn is broken down into appropriate chapters for easy reading and ready comprehension. The quality of paper used is excellent and the type is exceptionally clear.

Adequate review of a book which deals so comprehensively with a subject of such vital importance is impossible in a reasonable space. We can only say that we believe the student and the practitioner will find the answers to their questions on physiology within these covers, be the questions highly technical or strictly practical.—[*The Physiology of Domestic Animals*, 6th ed. By H. H. Dukes, D.V.M. Cloth, 817 pages, 184 figures. Comstock Publishing Co. Inc., 124 Roberts Pl., Ithaca, N. Y. 1947. Price \$7.00.]

Poultry Diseases

This book is a combination of poultry management and poultry disease, 28 contributors writing on their individual specialties. The first 192 pages are devoted to the problems of breeding, feeding, and husbandry. Then there are 275 pages on the diseases of poultry in England and, finally, 77 pages on poultry diseases in South Africa, Australia, Basutoland, Ceylon, Cyprus, Egypt, France, Gold Coast, Hawaii, India, Jamaica, Palestine, Sudan, Trinidad, and Tobago.

A practitioner who desires to become competent to investigate outbreaks of disease must acquire skill on the farm and in the laboratory. Such a combination of skills this text attempts to impart.—[*Diseases of Poultry*. Edited by W. P. Blount, with 28 contributors. Cloth, 562 pages, 116 illustrations. Williams and Wilkins Co., Baltimore, Md. (Printed in Great Britain), 1947.]

Veterinary Clinical Pathology

This book gives the practical, everyday techniques in ordered steps, and discusses the most practical laboratory procedures now in use for the diagnosis of animal disease. This style is used to make the information readily available to students and to practitioners who are not constantly engaged in laboratory work. Procedures for collecting and preserving speci-

mens from field cases are emphasized. Parasitologic examinations and the identification of the parasites and their ova are made easy by style of the text and the abundant illustrations—photomicrographs and sketches.

Urinalysis, hematology, and the recognition of disease caused by bacteria, fungi, protozoa, and viruses are presented in a basic and similar manner. Fertility examinations are discussed and illustrated in another chapter, and the book closes with a chapter on formulas for solutions and stains, and the techniques for using them.—[*Manual of Veterinary Clinical Pathology*. By David L. Coffin, V. M. D. Cloth, 263 pages, 66 figures. Comstock Publishing Co., Inc., 124 Roberts Pl., Ithaca, N. Y. 1945. Price \$4.00.]

Aseptic Treatment of Wounds

"This monograph is an attempt to correlate the knowledge and effort of all who contribute toward the aseptic treatment of wounds," the author says in the preface. He then proceeds to present the information, beginning with chapters on the Importance of the Aseptic Treatment of Wounds and the Development of the Concept of Asepsis, and working down through a series of chapters on destroying bacteria, sanitizing, disinfecting, and sterilizing instruments, textiles, body surfaces, pariental fluids, and even the air of the operating room.

Although the book is written primarily for use in human surgery and is illustrated accordingly, it does contain a vast amount of information which the veterinary surgeon can adapt to his needs.—[*Aseptic Treatment of Wounds*. By Carl W. Walter, M.D. Cloth, 372 pages, 255 figures. The Macmillan Co., 60 Fifth Ave., New York, N. Y. 1948. Price \$9.00.]

Endogenous Endocrinotherapy

This subject is especially concerned with the study of the various hypophyseal dysfunctions and their resultant diseases. The hormonal balance of the endocrine system, which most depends on the hypophyseal or pituitary balance, is necessary for good health.

Endogenous endocrinotherapy, the causal cure of many disease resulting from pituitary dysfunction, is based on an exact knowledge. This knowledge of the interaction of the several endocrine glands is widely applied in human medicine, and the veterinarian interested in this subject can profit from a study of the detailed discussion here presented, and from the compendium of short discussions of the diseases most frequently resulting from pituitary dysfunction.—[*Endogenous Endocrinotherapy, including The Causal Cure of Cancer*. By Jules Samuels. Cloth, 540 pages, 30 illustrations. Holdert & Co. Amsterdam, The Netherlands. (Printed in The Netherlands) 1947. Price not given.]

A Close Parent of Penicillin—Tyrothricin

Un Proche Parent de la Penicillin, la Tyrothricine is a 200-page book on the production, clinical, industrial, and agricultural application of tyrothricin, with a foreword by Professor Rene Dubos, of the Rockefeller Institute, New York City. The book is a formal announcement of the production of tyrothricin in France. The authors are P. Broch, F. Jacob, R. Courtade, and P. Boquet. It covers the history of its discovery, the techniques of manufacture, its physical and chemical properties, its action *in vivo*, the dosage, the clinical results obtained from its use, and its therapeutics. The book presses the thought that new knowledge of its limitations and its virtues has stirred new interest in the gramicidin discovered in 1939.—[*Un Proche Parent de la Penicillin, la Tyrothricine*. By P. Broch, F. Jacob, R. Courtade, and P. Boquet. 200 pages. Vigot Frères, Paris.]

Veterinary Report, Leeward Islands

Were it not for a relatively high incidence of bovine tuberculosis, coupled with the fact that the government has made no appropriation for an eradication program, this group of islands would rate high in livestock health. Tuberculin tests of over 1,100 cattle on one of the islands revealed 12.8 per cent reactors. There are about 19,000 cattle in the Leeward Islands. L. R. Hutson, chief veterinary officer for the colony, which lies east of Puerto Rico, in a report for the year 1946, lists "parasites, especially internal, and malnutrition associated with a low standard of animal husbandry" as the only other major animal health problems. Phenothiazine is giving good results against sheep parasites, expansion of the dipping program is effectively overcoming the cattle tick, and research on swine kidney worms appears to afford a sound approach to this parasite problem. Meat inspection is maintained on some of the islands, under the coöperative supervision of the veterinary and public health departments.—[*Leeward Islands, Report of the Director of Agriculture for the Year 1946*. 26 pages. 1947. Issued by the Colonial Secretary, Antigua, Leeward Islands.]

Excerpta Medica

This recent undertaking is an ambitious fling at publishing a comprehensive series of abstracts for the various branches of medicine—15 in all. Each sectional journal will be issued monthly. The sections already include: 1) anatomy, anthropology, embryology, histology; 2) physiology, biochemistry, pharmacology; 3) endocrinology; 4) public health, social and industrial medicine; 5) general pathology, pathologic anatomy, bacteriology; 6) internal medicine; 7) pediatrics; 8) neurology and psychiatry; 9) surgery; 10) obstetrics and gynecology; 11) oto-, rhino-, and laryngology; 12) ophthalmology; 13) dermatology and venereology; 14) radiology; and 15) tuberculosis.

The aim is to provide reliable abstracts in English covering every pertinent article published in any language anywhere. The monthly series, according to the prospectus, will contain several thousand abstracts carefully done by specialists. The samples sent for review are Section 12, ophthalmology; and Section 13, dermatology and venereology. Both are listed Vol. I, No. 1; the former contains 48 pages dated May, 1947, while the latter contains 96 pages dated April, 1947.

Subscribers may procure any one or any number of different sections. The cost ranges, according to the total pages per volume, from \$15 to \$45 per year, or \$342.50 annually for the complete set.

In effect, the departure is equivalent to publication of 15 new medical journals. Addition of a section on veterinary medicine is being considered.—[*Excerpta Medica, Ltd., 111 Kalverstraat, Amsterdam C, The Netherlands.*]

Report of the Ontario Veterinary College, 1946-47

In this capably edited and well-illustrated document are included several papers on college staff investigations of disease problems uppermost among Canadian producers' woes: parasite control, diseases of ranch-raised fur animals, reproductive disorders, nutrition, swamp fever, bovine mastitis, ketosis, swine erysipelas.

On the academic side, it is noted that the college is considering the addition of another year of professional study, as compared to the present sentiment in the United States to add a year of preprofessional study. The idea was cast aside temporarily because of the large veteran enrollment (72% of a total of 348 students), since it seemed inopportune to thrust another year of training upon men whose education already has been delayed too long. Instead, the academic year was lengthened to about thirty-two weeks, and a four-month regulated internship period between the third and fourth years was made obligatory. In reality, therefore, the professional course now comprises about four and a half years of training. Another new requirement is that matriculants must have at least five months of farm experience. In addition, an orientation course is included in the preveterinary year, and all students must pass a practical examination on it.—[*Report of the Ontario Veterinary College, 1946-47*. Dr. A. L. MacNabb, Principal. Sessional paper 29, 1947, Legislative Assembly of Ontario. Paper. 108 pages. Illustrated. Printed and published by B. Johnston, printer to the King's Most Excellent Majesty, Toronto. 1947. Public document.]

THE NEWS

Eighty-Fifth Annual Meeting

San Francisco, August 16-19, 1948

Headquarters Hotel—The Palace

Leave fans at home, bring your topcoat, and get set for the coolest, most comfortable AVMA convention you ever have attended. That advice comes from no less an authority than the San Francisco convention and tourist bureau, which declares that the average daytime temperature there in August is around 65 degrees, and the nights are cooler than that.

"See You in San Francisco"

Veterinarians and their families who have "sweated out" previous summer meetings will welcome that news—but the weather is just one of a long line of top-notch convention at-

tractions that will bring to the West Coast the largest aggregation of veterinarians ever seen there. AVMA housing bureau officials reported recently that advance hotel reservations point to an attendance considerably greater than was originally estimated. "See you in San Francisco" is a by-word wherever veterinarians meet, and is another indication of the tremendous interest that is accruing to this event.

Convention Issue

Plans for the program are now being completed and the entire schedule of events, including speakers and subjects for the scientific sessions, entertainment, and exhibitors,



—San Francisco Convention Bureau

Cliff House—with the seals disporting themselves on the rocks only a few hundred yards from shore.

will be published in the July issue of the JOURNAL, which will be the Convention Number.

Special Tour

Reservations are now being accepted for the Special Convention Tour which was described in the April and May issues. A train reserved exclusively for the AVMA will leave Chicago on the evening of August 9 and will arrive in San Francisco on the morning of August 15, after sightseeing stops at Carlsbad Caverns in New Mexico, Juarez in Old Mexico, and a three-day stopover at Riverside, Pasadena, Hollywood, Beverly Hills, and Los Angeles. Participants in the special tour will have their choice of returning to Chicago by way of the Canadian Rockies, Glacier National Park, or Yellowstone Park. Regardless of the return route selected, all tour party members will leave San Francisco on the morning of August 20 and will travel together as far as Seattle, where the party will divide into three groups and continue along the respective routes mentioned above. (Note: In earlier plans, the section going to the Canadian Rockies was scheduled to leave San Francisco on the evening of August 19, but this departure date has now been changed to the morning of August 20 in order to keep the tour party together as far as Seattle.)

"The Golden Gate in '48"

Atomic Energy Commission Fellowships

The National Research Council is announcing a new program of fellowships supported by funds provided by the Atomic Energy Commission as a part of the Commission's responsibility for future atomic energy research. Fellowships are available to young men and women who wish to continue in graduate training or research for the doctorate in an appropriate field of science. Others of these fellowships will provide training in biophysics applied to the control of radiation hazards. Additional fellowships will be assigned to those below the age of 35, who have already achieved the doctorate and who wish to secure advanced research training and experience in those aspects of the physical, biologic, and medical sciences related to atomic energy. Candidates will be selected by the fellowship boards of the National Research Council established for this program. For the selection of post-doctoral fellows in the medical sciences, a board has been set up under the chairmanship of Dr. Homer W. Smith, professor of physiology, College of Medicine, New York University. Fellowships will be granted for study and research in universities or other nonprofit research establishments approved by the fellowship boards. Awards will be made for the academic year 1948-1949. Further information can be obtained by writing to the Fellowship Office, National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

Veterinarians Featured on AFMA Program

Two of the nation's top representatives of the veterinary medical profession were featured on the fortieth anniversary convention program of the American Feed Manufacturers Association, May 5-7, in the Netherland Plaza Hotel, Cincinnati, Ohio.

Dr. W. A. Hagan, president of the AVMA, and dean of the New York State Veterinary College, addressed the convention of some 1,000 feed manufacturers on relationships between the feed dealer and the practicing veterinarian.

Dr. A. R. Theobald, Cincinnati small animal practitioner and president of the AAHA, related some of his practical observations on small animal feeding.

Other speakers of national and international recognition appearing on the program included: Leo M. Cherne, world traveler, author, educator, and executive secretary of the Research Institute of America; William L. Hunter, president of the Association of American Feed Control Officials; Paul H. Phillips, professor of biochemistry, University of Wisconsin; J. L. Krider, professor of animal science, University of Illinois; Jerry Sotola, assistant director of Armour's Livestock Bureau; and Lloyd S. Riford, chairman of the board, American Feed Manufacturers Association.

American Animal Hospital Association Meeting

The fifteenth annual meeting of the American Animal Hospital Association was held at the Hotel Biltmore, Atlanta, Ga., Apr. 19 to 22, 1948. This meeting broke all attendance records and those who attended the sessions expressed the opinion that the program at Atlanta was especially outstanding.

One of the highlights of the program was the presentation of the winners of the Moss Essay Contest. Students of the various veterinary schools participated in an essay contest on veterinary ethics. George M. Smith, of Ohio State University, was the winner, and George T. Allen, of Alabama Polytechnic Institute, was reserve winner.

Dr. Harold E. Groth of San Mateo, Calif., was elected president; Dr. J. Stuart Crawford, New Hyde Park, Long Island, N. Y., first vice-president; Dr. Ralph E. Ruggles of Moline, Ill., second vice-president; Dr. Wayne H. Risler of Evanston, Ill., executive secretary; Dr. Arthur R. Theobald of Cincinnati, Ohio, treasurer; and Dr. Jerry L. Ruble of Orlando, Fla., executive board member.

The convention chose Toledo, Ohio, as the meeting place in 1949.

S/WAYNE H. RISER, *Executive Secretary*.

AVMA Directory Publication Dates

Regarding inquiries for the "1948" AVMA Directory, it should be noted that the next edition will not be published until 1949. The Directory is published only every other year—in the odd year; the current edition is that of 1947. Copies are available to members at \$2.00 each.

Proposed Amendments to Constitution, Administrative By-Laws, and Code of Ethics

The following amendments, presented at the annual meeting of the House of Representatives in 1947, will come up for final action at the 1948 meeting in San Francisco. They were published in the proceedings of the 1947 session (see the JOURNAL, Oct., 1947, pp. 329-347) and are republished now for the special attention and study of members of the Executive Board and House of Representatives prior to the annual meeting next August.

PROPOSAL No. 1

[The purpose of this proposal is to integrate membership in constituent associations (state, provincial, territorial and other associations affiliated with the AVMA) with AVMA membership. If this purpose is to be effected several changes are necessary as given below.]

Amend Article III, Paragraph (b) of the Constitution, to read:

The general membership, otherwise known as the active membership, shall consist of (1) graduates of veterinary colleges approved by the Association who are members of their respective constituent associations and who have been duly elected in the manner hereinafter provided, and (2) other graduate veterinarians duly elected in the manner provided by the By-Laws, who live in countries outside of the United States and the Dominion of Canada and who are otherwise eligible but do not or could not hold membership in a constituent association.

Amend Article IV, Section 1 of the Constitution to read as follows:

State, territorial, and provincial veterinary associations of North America, The National Association of Federal Veterinarians, and such other official associations as may hereafter become organized in conformity with the general plan of the American Veterinary Medical Association, and which have adopted the same qualifications for membership, shall be recognized upon application as constituent associations provided such application is approved by a majority vote of the Executive Board.

Amend Article X, Section 2 (a) of the By-Laws as follows: Drop the last sentence and replace with the following:

The application from a member of a constituent association shall contain the certificate of its secretary that the applicant is a member in good standing of that body. In the case of an application from a veterinarian residing outside the United States and the Dominion of Canada, it shall contain the endorsement of two members who know the applicant, one or preferably both of whom shall live in the same country as the applicant.

The American Veterinary Medical Association reserves the right to reject the application of any member of any constituent association.

Replace paragraph (b) of Section 3, Article X, as follows:

Members who have been dropped from constituent associations shall be dropped from the American Veterinary Medical Association on official notification by the secretary of the constituent association and shall be reinstated in the same manner. Whenever a member of this Association is dropped for any reason, the secretary of the constituent association in which he holds membership shall be notified promptly.

Replace Section 4 of Article X with the following:

The applications of candidates who reside outside the jurisdiction of constituent associations shall be submitted to the Executive Board and shall be accepted or rejected by that body at any regular or special meeting. These members shall have all of the rights and privileges and be subjected to the same obligations as other active members except only that they are not required to maintain membership in a constituent association.

PROPOSAL No. 2

[The purpose of this proposal is to increase the annual dues from \$7.00 to \$10.00, including subscription to the JOURNAL and was recommended last year by the Executive Board to meet the costs of the expanding program of the Association.]

Amend Article X, Section 3(c) to read:

Dues shall be \$10.00 a year, of which \$4.00 is for payment of one year's subscription to the official JOURNAL of the Association. Dues are payable in advance on January 1 of each year.

Amend Article X, Section 3(d) by striking out "\$7.00" and substituting "\$10.00" in the third line.

Amend the schedule in the same paragraph for the amounts to be remitted each month, in line with the increase in dues provided by the above.

January	15.00	July	10.00
February	14.17	August	9.16
March	13.33	September	8.33
April	12.50	October	7.50
May	11.66	November	6.66
June	10.83	December	5.83

Amend the last paragraph of Section 3(d) to read as follows:

Of the annual dues of \$10.00, \$4.00 is to be credited as subscription to the JOURNAL.

PROPOSAL No. 3

[The purpose of this proposal is to bring about greater stability and effectiveness of the House of Representatives as the legislative and business body of the Association by increasing the length of service of House members. This proposal should also be considered in the light

of the arrangement approved by the Executive Board last year by which the AVMA will pay an amount equivalent to one-half of the round-trip railroad fare and pullman expense of one accredited delegate in attendance at the annual meeting of the House from each affiliated association.]

Amend Article IX, Section 4 to read as follows:

Tenure: Members of the House are elected for four years, which means that they shall serve during four consecutive annual sessions of the Association, except that in the beginning, approximately half of the constituent groups shall be designated by the Executive Board to elect for an initial two-year term in order that all terms of office will not terminate at one time.

PROPOSAL No. 4

[The purpose of this proposal is to relieve the president from the duty of presiding at sessions of the House and to add this duty to those of the president-elect.]

Amend Article II, Section 3.—Duties of the president by deleting "and at all sessions of the House of Representatives."

Amend Article III, Section 2, relating to the duties of the president-elect by adding the following paragraph to follow the present first paragraph:

He shall preside at all sessions of the House of Representatives and shall, if desired, present to the House his program for the coming year.

PROPOSAL No. 5

It is proposed to amend Paragraph 7 of the Code of Ethics by adding the following new sub-paragraph g):

g) No member shall willfully place his professional knowledge, attainments, or services at the disposal of any lay body, organization, group or individual, by whatever name called, or however organized, for the purpose of encouraging unqualified groups and individuals to diagnose and prescribe for the ailments and diseases of animals. Such conduct is especially reprehensible when it is done to promote commercial interests and monetary gain. Such deportment is beneath the dignity of professional ethics and practice; it can be harmful to both the welfare of the animal-owning public and the veterinary profession; it violates principles of humane animal care; it may cause great economic loss and endanger public health and is, therefore, contrary to sound public policy.

PROPOSAL No. 6

It is proposed to add the following new sub-head to the Code of Ethics following present Paragraph 31, and to number it Paragraph 32 as follows:

PHARMACISTS

Paragraph 32.—Licensed pharmacists should be recognized by members of the veterinary profession and their services should be utilized; but any pharmacist, unless he also be qualified as a veterinarian, who assumes to diagnose

and prescribe for sick animals or for the handling of contagious and infectious diseases of animals, should be denied such recognition and support, since his activities may be viewed as prejudicial to the public interest, contrary to laws governing veterinary medical practice, and in violation of state and federal laws made and provided for the control of animal diseases.

If adopted, present Paragraphs 32 and 33 would be re-numbered 33 and 34, respectively.

PROPOSAL No. 7

[The purpose of this proposal is to carry out the recommendation made by the Section on Sanitary Science and Food Hygiene at the 1947 meeting, namely, that the name of this section be changed to "Public Health." In compliance with the recommendation, Dr. Martin D. Baum, present chairman of the section has submitted the following amendment.

As provided in Section 3, Article XIII, of the Administrative By-Laws, relating to amendments, this proposal will be published in three consecutive issues of the JOURNAL and can then come up for final action at the annual meeting in San Francisco.]

Amend paragraph (e) of Section 1, Article XIV, Administrative By-Laws, by changing the words "Sanitary Science and Food Hygiene" to "Public Health."

Film Strips on Veterinary Phases of Public Health

The Veterinary Public Health Division announces the release of three film strips on veterinary phases of public health. They are: (1) "The Fight Against Rabies," which outlines a control program; (2) "Laboratory Diagnosis of Rabies," which describes the laboratory techniques used in diagnostic work; and (3) "Trichinosis Control," which explains what trichinosis is and how it may be controlled. There are two copies of this latter film available, one for professional audiences and the other for interested groups.

Quebec School Needs Veterinary Journals

École de Médecine Vétérinaire, St.-Hyacinthe, Quebec, has asked the help of the veterinary profession in augmenting the periodical section of the school's library. This school would like to obtain copies of veterinary journals issued prior to 1948 and will pay all postage or express charges incident to shipment. The library has funds to purchase essential books, but it does not have a sufficient appropriation to purchase back issues of periodicals on the scale required. Therefore, veterinarians who have journals no longer needed for reference purposes can help greatly by contributing these publications. Within the limits of available supplies, the AVMA will furnish the school with copies of the JOURNAL and of the *American Journal of Veterinary Research* not available from other contributors.

Shipments should be addressed to: Dr. J. Rod. Borduas, Librarian, École de Médecine Vétérinaire, St.-Hyacinthe, Quebec, Canada.

STUDENT CHAPTER ACTIVITIES

Ohio State University Chapter.—The Junior Chapter of the AVMA at The Ohio State University met on April 7, 1948. Guest speaker of the evening was Dr. Floyd Faust, who spoke on "The Marriage Problems of the Professional Man." A dance and picnic were planned in cooperation with the Ladies' Auxiliary.

S/DALE D. KEYSER, *Secretary*.

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Cornell Chapter Junior AVMA.—The Cornell Chapter Junior American Veterinary Medical Association has had an active and interesting semester, with several outstanding meetings to report.

On Feb. 25, 1948, Dr. L. D. Frederick, chief veterinarian of the Research Division of Swift and Company, discussed "Veterinary Horizons" before the group. Dr. Frederick, stressing the increasing demand for veterinary service, showed that the field has many possibilities for expansion.

On March 10, two films, "Valiant Years," and "The Other Side of the Fence," were shown to an audience of well over 200 persons.

Dr. W. A. Hagan, president of the AVMA and dean of the New York State Veterinary College, was guest speaker at the March 24 meeting. Dr. Hagan, recently returned from Mexico, presented a vivid summary of the foot-and-mouth disease situation there.

Dr. Herrell F. DeGraff, professor of land economics at the New York State College of Agriculture, discussed "Agricultural Trends" at the April 16 meeting. Dr. DeGraff stressed the importance of an expanding livestock production in order to meet our export requirements and to maintain and improve the dietary level of the American people.

Because there was no senior class in the veterinary college this year, the annual Honor Day Exercises were not held. Instead, the Junior AVMA sponsored a semiformal spring dance on May 8.

The Chapter wound up the semester's activities on May 22, with a spring day picnic.

Officers elected at the March 24 meeting were: Karl R. Reinhard, *president*; Gerald E. McCarthy, *vice-president*; Bennett J. Cohen, *secretary*; Stanley M. Aldrich, *treasurer*; and Robert M. Cello, *member-at-large*.

A motion is now pending to establish an annual junior AVMA senior award to a member of the senior class "who, although not achieving scholastic honors, nevertheless has been an outstanding member of his class with respect to character, personality, initiative, extracurricular activities, and improvement scholastically during his years in the Veterinary College." Senior students will vote for the member of their class whom they feel deserves the award, which will probably consist of equipment and an appropriate shingle.

Ratification of the new student chapter constitution was expected at the last business meeting of the year. Lively discussion of the proposed by-laws and constitution has taken place and several changes have been made. The

Chapter hopes to have a worthy constitution when ratification does occur.

James B. Wight of the third year class has been appointed chapter reporter and public relations officer.

S/BENNETT J. COHEN, *Secretary*.

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(Continued from May JOURNAL)

History of the OSU Student Chapter of the AVMA.—The Ohio State Student Chapter, functioning successfully since 1939, seems to be gaining in popularity and achievement. Approximately 95 per cent of the present sophomore class are eligible members. The freshman class is attempting to better this record and is well on its way toward doing it. Attendance is much better than ever before. Many wives attend and seem to share their husbands' enthusiasm.

Meetings are scheduled on alternate Wednesday evenings. The first meeting of each year is devoted to the incoming freshmen. There is no formal initiation, but these potential members are introduced to the organization and are acquainted with its rules and purposes. An effort is made to secure outstanding speakers for the meetings, usually specialists in veterinary medicine and allied fields. They are chosen on the basis of the diversity of their practice in order that students may become better acquainted with various aspects of veterinary medicine. Occasionally, speakers not associated with the veterinary field are obtained.

At one of the meetings toward the end of the school year, the annual Borden Award is presented. This award, a certificate, and a check for \$300, is given to the outstanding junior in the college on the basis of scholarship. It is presented by a representative of its donor, the Borden Company.

The principal social event of this chapter is the annual AVMA student chapter banquet. Highlights of the banquet are the presentation of the Omega Tau Sigma Award given to the outstanding senior on the basis of attitude, ability in the clinic, and personality—rather than scholarship alone; the Alpha Psi Award presented to the student chosen by that fraternity for leadership and ability; and the Phi Zeta tapping. The latter is the first indication a student receives that he has been nominated for membership into this honorary fraternity. Faculty members of Phi Zeta disperse among the assembled students, and by tapping the chosen ones on the shoulder indicate that they are to become members of Phi Zeta. Other social events include dances and the annual picnic.

In 1946, the wives of members of the AVMA student chapter formed an organization known as the Junior AVMA Auxiliary. The auxiliary is a useful adjunct to the chapter. Meetings are held monthly and are designed to acquaint members with the problems confronting wives of veterinarians. Active in the social life of the chapter, they insure the success of the picnics and dances.

We are proud of the progress made by the Ohio State Student Chapter of the AVMA, since its early beginning as the Literary Society at the turn of the century, and we hope that its present status will be maintained and even surpassed in the years to come.

(Student Chapter Activities—Continued)

History of the ISC Student Chapter of the AVMA.—The forerunner of the Iowa State College Student Chapter of the AVMA was the Veterinary Medical Society, organized in the spring of 1884. Charter members were W. E. D. Morrison, G. S. Osborn, W. B. Miles, M. E. Johnson, E. E. Sayers, D. E. Collins, and W. R. Whiteman. Most of the spring term was utilized in organizing the Society and in drawing up a satisfactory constitution and by-laws, which were revised in 1885.

Near the close of the spring term of 1886, the constitution was again revised. At this time, the dean of the veterinary faculty was made permanent president and the house surgeon became first vice-president. Near the close of the fall term, arrangements were made for incorporating the Society under the laws of Iowa.

In 1899, nearly all of the new veterinary students became members, bringing the membership up to 20. Seven senior students, who were members, were graduated this year; a contrast to the first year when only two senior members were graduated.

At the opening of the spring term of 1891, the constitution and by-laws were again revised. At this time, the membership was larger than at any time in its previous history, and 36 full-fledged veterinarians had graduated, namely: 1884, G. S. Osborn, W. E. D. Morrison; 1885, G. H. Glover, M. E. Johnson, W. B. Miles, E. E. Sayers; 1886, B. Buchli, H. L. Chatterton, G. A. Johnson, E. S. Johnson, E. P. Miles, J. J. Streets; 1887, E. Besser, G. C. Barnes, J. Tillie, R. P. Thurtle, W. S. Igo, L. G. Pattey, F. C. Ferguson, F. W. Hoskins, J. N. Wilson; 1888, F. W. Ainsworth, R. C. Sayers, E. K. Paine, G. L. Buffington; 1889, C. A. Ashworth, A. E. Bosquett, J. McBirney, S. Nelson, J. H. Platt, M. Reynolds, J. O. Simcoke; 1890, Q. C. Fuller, A. R. Williams, J. C. Norton, J. J. McLaughlin.

At a meeting of the Veterinary Medical Society on Jan. 12, 1927, Dean C. H. Stange gave an interesting talk on the American Veterinary Medical Association and the advantages to be obtained by the national organization and the profession by forming a junior membership in the AVMA. Following this meeting, the Veterinary Medical Society made application to the AVMA for a junior membership. On May 4, 1927, the Society was informed that the Executive Board of the AVMA had accepted the application for the Iowa State Chapter of the AVMA. In 1939, the present Iowa State College Student Chapter of the American Veterinary Medical Association was chartered by the parent organization.

(To be continued)

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

COONEY, RAYMOND E.
1310 Lakeview Blvd., Seattle, Wash.
D.V.M., Iowa State College, 1946.
Vouchers: C. W. Betzold and H. C. Maxey.

DONAHOE, ANTHONY A.
123 Barnard St., State College, Pa.
V.S., Ontario Veterinary College, 1915.
Vouchers: G. M. Leighow and S. M. Nissley.

ELTING, ANDREW W.
Miles City, Montana.
D.V.M., Washington State College, 1944.
Vouchers: W. J. Butler and A. M. Jasmin.

FABRICANT, JULIUS
117 College Ave., Ithaca, N. Y.
V.M.D., University of Pennsylvania, 1942.
Vouchers: C. G. Rickard and J. H. Gillespie.

GARCIA, JOSE
2805 Flagler Ave., Key West, Fla.
D.V.M., University of Habana, 1938.
Vouchers: S. V. Ramsey and C. E. Bild.

HENRY, PERRIAN R.
Comision Mexico-Americana, 5 de Febrero 73,
Apartado Postal 751
Mexico, D.F.
D.V.M., Texas A. & M. College, 1946.
Vouchers: K. R. Hoyt and H. Rubin.

KIRKPATRICK, DAN Y.
1600 N. Orange Ave., Box 3029, Orlando, Fla.
D.V.M., Alabama Polytechnic Institute, 1944.
Vouchers: J. L. Ruble and C. S. Davis.

KLAR, JOHN M.
4414 Tarzon St., Los Angeles 33, Calif.
D.V.M., New York State Veterinary College,
1938.
Vouchers: A. E. Stockton and S. B. Apt.

MCRORY, ORVILLE B.
Box 1194, Palm Springs, Calif.
D.V.M., Washington State College, 1937.
Vouchers: G. H. Kenaston and W. C. Bateman.

MURNANE JR., THOMAS G.
3222 Lemmon, Dallas, Tex.
D.V.M., Texas A. & M. College, 1947.
Vouchers: G. R. Burch and A. A. Lenert.

RASBECH, NIELS O.
The Royal Veterinary and Agricultural College, Copenhagen, Denmark.
D.V.M., Royal Veterinary and Agricultural College, Denmark, 1943.
Vouchers: O. Norling-Christensen and R. C. Klussendorf.

SCHULBERG, HOWARD L.
134 E. 82nd St., New York 28, N. Y.
D.V.M., Texas A. & M. College, 1941.
Vouchers: S. M. Pessin and N. G. Simels.

SMITH, ROBERT F.
Belleville, Wisconsin
D.V.M., Ohio State University, 1941.
Vouchers: J. D. Leary and J. G. Hardenbergh.

Second Listing

Clark, Wilbur G., Delchester Farms, Edgemont, Pa.
Helfand, Louis I., 6427 N. 15th St., Philadelphia 26, Pa.
Hoffman, William F., 1712 State St., Harrisburg, Pa.
Ikard, William L., 1517 4th Ave. S., Great Falls, Mont.
Leech, J. Alexander, P. O. Box 1320, Jackson, Tenn.
Levesque, Francois, Oka, P. Q., Canada.
Pacheco-Perez, Daniel, Facultad de Medicina Veterinaria, Ciudad Universitaria, Apartado 11-70, Bogota, Colombia, S. A.
Powers, James F., Center Street, Dover, Mass.

Price, Edmund R., 4214 Old Brook Rd., Richmond 22, Va.
 Tompkins, Richard J., 6018 San Pablo Ave., Oakland 8, Calif.
 Torres E., Jose, Nopaltzin Num. 6, Col. Anahuac, Mexico, D.F.
 Williamson, William W., 1414-9th St., Modesto, Calif.
 Woods, Samuel H., Murfreesboro, Tennessee.

1948 Graduate Applicants

First Listing

The following are graduates who have recently received veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Ohio State University

GRAHAM JR., THOMAS L., D.V.M.
 Main Street, Arthur, Ill.
 Vouchers: W. R. Krill and C. R. Cole.

Second Listing

Alabama Polytechnic Institute

Meyer, Lawrence D., D.V.M., Calera, Alabama.
 Moore, Jr., John G., D.V.M., Evergreen, Alabama
 Sellars, Carl M., D.V.M., P. O. Box 314, Burlington, N. C.

Ohio State University

Check, John P., D.V.M., Wauzeka, Wisconsin.
 Davis, Horace N., D.V.M., 123 Warren Ct., Lexington, Ky.
 Delaney, Dalton M., D.V.M., Deerfield, Wisconsin.
 Easterbrooks, H. Lincoln, D.V.M., 286 Pleasant St., Concord, N. H.
 Ehlerding, Howard F., D.V.M., Port William, Ohio.
 Elsner, Robert J., D.V.M., 26159 Detroit Rd., Westlake, Ohio.
 Evans, Lee, D.V.M., Butler, Kentucky.
 Hadlow, William J., D.V.M., U. of Minn., Div. of Vet. Med., University Farm, St. Paul 1, Minn.
 Harthill, Alexander H., D.V.M., 611 E. Broadway, Louisville, Ky.
 Hey, Donald W., D.V.M., Main Street, Oxford, Mass.
 King, Nelson B., D.V.M., 2267 N. High Street, Columbus, Ohio.
 Koustmer, Ralph F., D.V.M., 29 Chalfonte Pl., Ft. Thomas, Ky.
 Lusk, Herald E., D.V.M., Kingman, Indiana.
 Mason, Richard R., D.V.M., Empire St. and Demeter Dr., Freeport, Ill.
 Myers, Donald J., D. V. M., 1000 South A. Street, Elwood, Ind.
 Ransdell, Lewis A., D.V.M., 556 Pine St., Greenfield, Ohio.
 Sanders, Lloyd J., D.V.M., 8208 Carnegie Ave., Cleveland, Ohio.

Smith Homer R., D.V.M., Rt. 1, New Straitsville, Ohio.
 York, Charles J., D.V.M., 110 Irving Pl., New York.

University of Pennsylvania

Ainley, Richard G., V.M.D., Box 889, Woodlake, Tulare Co., Calif.
 Benson, John H. V.M.D., 331 Bellevue Ave., Trenton 8, N. J.
 Cowan, James H., V.M.D., Box 302, Parkersburg, Pa.
 Creamer, Alan A., V.M.D., 408 Thayer St., Ridley Park, Pa.
 Detwiler, Richard H., V.M.D., 22 Kenhorst Blvd., Reading, Pa.
 Garvey, John J., V.M.D., 4002 Pine St., Philadelphia 4, Pa.
 Hammond, Robert C., V.M.D., R. D. 3, Wellsboro, Pa.
 Hollis, Robert H., V.M.D., R. D. 1, Charmead Farm, Lansdale, Pa.
 Hopkins, Dav. 3 M., V.M.D., 68 Norwood Ave., Upper Montclair, N. J.
 Jackson Jr., James M., V.M.D., Walnut Park Plaza, 63rd and Walnut, Philadelphia, Pa.
 Kelton, Richard C., V.M.D., 3920 Pine St., Philadelphia, Pa.
 Kline, Joseph I., V.M.D., c/o Dr. John Gadd, 707 York Rd., Towson, Md.
 Lebeaux, Maxim L., V.M.D., 30 Fruit St., Shrewsbury, Mass.
 Mc Clement, James M., V.M.D., 1112 Try St., Monongahela, Pa.
 Page, Harry H., V.M.D., 912 Unruh, Philadelphia, Pa.
 Roberts, Harold D. B., V.M.D., Meadowridge Farm, Linwood, Pa.
 Rothman, Marvin, V.M.D., 4948 Germantown Ave., Philadelphia, Pa.
 Rowan, Craig, V.M.D., 280 W. 11th St., New York, N. Y.
 Ruder Jr., Frederick G., V.M.D., 300 N. Pleasant St., Amherst, Mass.
 Sackett Jr., Irving D., V.M.D., 102 Lake St., Girard, Pa.
 Sheok, John C., V.M.D., 110 Aikens Place, State College, Pa.
 Skver, Maurice H., V.M.D., R. D. 2, Newburgh, N. Y.
 Spangler, John F., V.M.D., Rt. 4, Harrisonburg, Va.
 Suter, Harry A., V.M.D., New Enterprise, Pa.
 Wiley, Dale A., V.M.D., 50 West Ave., Wellsboro, Pa.
 Wilson, Cameron S., V.M.D., Richboro, Pa.
 Zahn, Alan, V.M.D., 801 21st St., Union City, N. J.

Texas A. & M. College

Genrich, Mainard E., D.V.M., Box 991, College Station, Texas.

U. S. GOVERNMENT

Veterinary Personnel Changes.—The following changes in the force of veterinarians in the U. S. BAI are reported as of Apr. 7, 1948, by Chief B. T. Simms.

TRANSFERS

Joseph N. Allred, from Albuquerque, N. M., to Phoenix, Ariz.

Beck B. Bowen, from Watertown, S. Dak., to Fort Dodge, Iowa.

Lucius N. Butler, from Albuquerque, N. M., to Phoenix, Ariz.

Chalmer W. Chapin, from Storm Lake, Iowa, to Mason City, Iowa.

Louis C. Crow, from Helena, Mont., to Oklahoma City, Okla.

William C. Dye, from San Antonio, Texas, to El Paso, Texas.

Kenneth H. Fritts, from Mexico City, Mexico, to Pierre, S. Dak.

Troy S. Hopkins, from Mexico City, Mexico, to Shreveport, La.

Garnet M. Jones, from Albuquerque, N. M., to Omaha, Neb.

Charles A. Kennedy, from Waterloo, Iowa, to St. Albans, Vt.

Bert H. Largent, from Albuquerque, N. M., to Phoenix, Ariz.

William T. Lightle, from Albuquerque, N. M., to Phoenix, Ariz.

Alfred T. Ostendorf, from South St. Paul, Minn., to Chippewa Falls, Wis.

Edwin L. Peck, from Omaha, Neb., to San Antonio, Texas.

George S. Phalares, from St. Albans, Vt., to New York, N. Y.

John D. Puppel, from Chicago, Ill., to Cortland, N. Y.

Ernest E. Saulmon, from Mexico City, Mexico, to El Paso, Texas.

Wilbur K. Shidler, from Reno, Nev., to San Francisco, Calif.

Max B. Smith, from Albuquerque, N. M., to Phoenix, Ariz.

Arthur L. Stigers, from Sioux City, Iowa, to Storm Lake, Iowa.

Roswell Telford, from Des Moines, Iowa, to Watertown, S. Dak.

RESIGNED

Joseph Abramson, Harrisburg, Pa.

Margaret Ascher, Beltsville, Md.

Rebecca K. Borton, Augusta, Maine.

Grant P. Cottrell, South St. Paul, Minn.

Celestino Dominquez, San Juan, Puerto Rico.

Allan M. Greenlee, Columbus, Ohio.

LaVerne C. Harold, Kansas City, Kan.

Laurence B. Hines, Austin, Minn.

Daniel S. Jaquette, Beltsville, Md.

James H. MacKenzie, Lansing, Mich.

John S. Orsborn, Jr., Mexico City, Mexico.

Orin C. Peters, Louisville, Ky.

Walter V. Petty, Atlanta, Ga.

Philip S. Tubis, Philadelphia, Pa.

Hugo F. Vollberg, Baltimore, Md.

J. T. Westbrook, Fort Worth, Texas.

Kazimierz Zakrzewski, Columbus, Ohio.

RETIRED

Artie B. Angell, Baltimore, Md.

Wilbert A. Curtis, Fort Worth, Texas.

Sid Galt, Little Rock, Ark.

DEATH

James J. Ash, Chicago, Ill.

Michael Beus, Sacramento, Calif.

William C. Hamilton, Jr., Omaha, Neb.

Carl L. Lyness, Chicago, Ill.

Daniel S. Otey, Richmond, Va.

Seaborn H. Still, San Juan, Puerto Rico.

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Remount Program Transferred to USDA.—A bill permitting the transfer of the Army remount program to the USDA was passed by Congress on April 8, 1948, according to press reports. It is expected that actual transfer of the facilities, including animals, will take place on July 1, 1948. Assignment of some Army personnel is contemplated to assist the USDA in carrying out the remount program.

AMONG THE STATES AND PROVINCES

Alabama

Animal Disease Research Workers Meet.—The Animal Disease Research Workers in the southern states met on April 2, 1948, at the Alabama Polytechnic Institute, Auburn. The following program was presented:

Dr. Dale A. Porter, Regional Laboratory, Auburn: "Animal Parasites."

Dr. S. A. Edgar, Alabama Polytechnic Institute: "Recent Trends in the Control of Poultry Ectoparasites and the Effect of Lice on Egg Production."

Dr. O. W. Olsen, Bureau of Animal Industry, Angleton, Texas: "Liver Flukes in Cattle."

Dr. H. L. Lucas, North Carolina State College, Raleigh: "Application of Statistical Analysis to Animal Disease Research Data."

Mr. R. A. McGinty, vice-director, Agricultural Experiment Station, Clemson, S. C.: "The Research and Marketing Act."

Dr. E. P. Johnson, Virginia Polytechnic Institute: "Pneumoencephalitis."

Drs. O. L. Osteen, BAI, Washington, D. C., and F. E. Hull, University of Kentucky, Frankfort: Discussion.

Dr. Herman Farley, Oklahoma A. & M. College, Stillwater: "Report of the Committee on Anaplasmosis and Presentation of a Proposed Regional Research Program."

S/W. T. OGLESBY, Secretary.

British Columbia

Personal.—Dr. S. J. Gibson has sold his general practice in Mission City, B. C., Canada, and plans to spend some time visiting and resting in Ontario before he returns to practice in the early summer. Dr. Gibson will limit his new practice to diseases of poultry and of sport or pleasure horses in Vancouver, B. C. In the meantime he plans to purchase a harness horse and a Boston Bull dog for his own pleasure.

California

University to Have Veterinary Unit.—Dr. L. M. Hurt, on April 16, attended the groundbreaking ceremony for the new veterinary unit of the University of California at Davis. The University will take its first class of 40 veteri-

nary students in the fall. According to Dr. O. W. Schalm, the building should be completed in 500 calendar days.

Stilbestrol Cancerogenic.—Whether the continuous use of stilbestrol is capable of causing cancer is to be decided by a Los Angeles court. A defendant physician is charged with malpractice for allegedly causing a cancer by prescribing stilbestrol tablets over a long period of time to a woman with a family history of cancer. The implication that the drug is cancerogenic in that event was recognized in the defendant's contention that the statute of limitations having been exceeded, the suit should be dismissed. The court ruled that the case be tried and, therefore, Los Angeles will be given the opportunity to decide a fine point on the etiology of medicine's most bewildering problem.

Colorado

County Association Meets.—The Weld County Veterinary Medical Association met April 14. The program was a round table discussion by a dairyman, a breeder, and a feeder. Problems discussed were "Foot-and-Mouth Disease," "Drug Store Veterinarians," and "Construction of Yards for Handling Stock."

S/W. P. BLAKE, *Secretary.*

Dr. Newsom Reminiscences.—Dr. I. E. Newsom, who will retire as dean of the Division of Veterinary Medicine after fourteen years in that position, is writing a series of "Reminiscences." These have appeared in the *Colorado Veterinary Medical Association News Letter* since the March 11, 1948, issue. Dr. Newsom has been with the college since his graduation in 1904 and was named president in February. He will remain on the staff as a professor in the veterinary medicine division.

S/W. P. BLAKE, *Secretary.*

Dr. F. Cross New Dean of Colorado A.&M.—Dr. Floyd Cross will become dean of the Division of Veterinary Medicine at Colorado A. & M. College, July 1, when Dr. I. E. Newsom retires from that position. Dr. Cross has served as head of the Department of Pathology and Bacteriology for eight years. He has been with the school since he was graduated from it in 1915.

Personal.—Dr. W. W. Aichelman was elected mayor of Ft. Lupton, Colo., at the recent election.

Connecticut

Dr. W. H. Timmons Retires.—Dr. Timmons, on Jan. 1, 1948, retired from the Hartford Live Stock Insurance Company, after almost thirty years of service with that company. After Dr. Timmons was graduated from the Ohio State University, College of Veterinary Medicine, he spent several years in government service. In 1927, he was appointed assistant general agent of the Hartford Live Stock Insurance Company, and became general agent in 1933. He has made his home in Monticello, Ind., since his retirement. Dr. Timmons has

been a member of the American Veterinary Medical Association for thirty-six years.

District of Columbia

District of Columbia Association Meets.—The District of Columbia Veterinary Medical Association met in the Pan American Room, Mayflower Hotel, Apr. 14, 1948.

The program consisted of a panel discussion on penicillin, with speakers as follows:

Mr. Donald C. Grove, Ph.D., assistant chief, Division of Penicillin Control and Immunology, Food and Drug Administration, F.S.A.: "Standardization and Production of Penicillin."

Dr. Harold L. Hirsh (M.D.), acting medical director, Medical Division, Food and Drug Administration, F.S.A.: "Uses and Doses of Penicillin in Human Medicine."

Dr. John C. Collins, assistant chief, Veterinary Medical Section, Medical Division, Food and Drug Administration, F.S.A.: "Uses and Doses of Penicillin in Veterinary Medicine."

Dr. J. Raymond Currey, Washington, D. C., led a discussion on "Penicillin in Local Small Animal Practice."

Dr. Richard G. Buckingham, Rockville, Md., led a discussion on "Penicillin in Local Large Animal Practice."

S/R. T. HABERMANN, *Secretary.*

Georgia

Southern Association Meets.—The South Georgia Veterinary Medical Association met at the Experiment Station in Tifton, May 2. The program consisted of a demonstration of medicating hogs via the stomach tube, by Dr. S. R. Bowen, Jr., and a discussion of postparturient troubles of cattle (exclusive of the milk fever syndrome), by Dr. H. G. Young of Thomasville.

S/W. L. SIPPEL, *Secretary.*

Work Begun on New School.—Acting Governor Thompson, on April 8, broke ground for the cornerstone, and actual building was started at once on the new \$1,500,000 school of veterinary medicine on the University of Georgia's south campus. When completed, the new school is expected to be one of the finest in the country. It is expected that the buildings will be finished in time to accommodate the many young men already enrolled at the university in the study of veterinary medicine.

Guam

Outbreak of Sleeping Sickness.—An outbreak of Japanese "B" encephalitis has occurred among the military and civilian personnel of the island. The disease is distinct from other types of encephalitis and is native to Japan. Among the victims as of February 6, were 37 civilians and five military persons. Being mosquito-borne, measures to control mosquitoes have been intensified under the directions of newly arrived Army epidemiologists. — *From the Army and Navy Journal, February, 1948.*

The relationship of Japanese "B" encephalitis and encephalomyelitis of animals has not been determined in so far as current veterinary literature indicates.

Illinois

Meeting of Eastern Association.—The Eastern Illinois Veterinary Medical Association met at the Tilden Hall Hotel in Champaign on March 22. The meeting opened with a banquet, with forty-five veterinarians and several of their wives attending. After the banquet, the following program was presented:

Dr. E. T. Anderson: "Plans for the I.S.V.M.A. for the Coming Year."

Dr. R. C. Klussendorf brought greetings to the group from the AVMA.

Mr. Peter Jans: "Insurance."

Dr. N. O. Rasbech, Royal Veterinary Institute, Copenhagen, Denmark: "Veterinary Medicine in Denmark."

Officers elected at this meeting are: Drs. W. C. Freeland, Rantoul, *president*; J. O. Alberts, Urbana, *secretary*. Drs. D. E. Sisk, Mansfield, and L. N. Morin, Clinton, were elected as representatives to the state committee for the development of a plan to integrate the district organizations with the State Association.

S/C. D. VAN HOUWELING, *Director*.

Chicago Association Meets.—The Chicago Veterinary Medical Association met in the Palmer House on April 13. Guest speaker for the evening was Dr. Melvin H. Knisely, assistant professor of anatomy, University of Chicago, whose subject was "Sludged Blood."

The ladies enjoyed a demonstration of flower arrangement technique and a musical program by Mrs. Jack Dinsmore and Mrs. Hal Stanton.

S/ROBERT C. GLOVER, *Secretary*.

Dr. Greig Joins Veterinary College Staff.—Dr. W. Alastair Greig of Edinburgh, Scotland, has joined the University of Illinois College of Veterinary Medicine staff as visiting assistant



Dr. W. A. Greig

in the Department of Veterinary Clinical Medicine, Dean Robert Graham announced recently.

Dr. Greig was graduated from the Royal (Dick) Veterinary College at Edinburgh in 1942. He received the bachelor of science de-

gree in veterinary science from the University of Edinburgh.

During World War II, Dr. Greig spent three years in India as a member of the Royal Army Veterinary Corps. He was discharged early in 1947 with the rank of major. Since then, he has been revising a standard British handbook for veterinarians. He is a member of the National Veterinary Medical Association of Great Britain and Ireland, and of the Highland and Agricultural Society of Scotland.

S/L. E. ASHELFORD.

Death of Col. Louis A. Merillat, Jr.—Col. Louis A. Merillat, Jr., aged 56, only son of JOURNAL Editor-in-Chief L. A. Merillat and Mrs. Merillat, died at South Shore Hospital in Chicago on April 26, 1948, following a major operation. A graduate of West Point Military Academy, class of 1915, and a classmate of Generals Dwight Eisenhower and Omar Bradley, he was a famous athlete at the Academy, played end on the football team against such other stars as the late Knute Rockne, and was on Walter Camp's All-American team in 1913.

Colonel Merillat served with distinction in both World Wars; with the 3rd Division, First Army, he saw action at Chateau Thierry, St. Mihiel, and in the Argonne in World War I, coming out of the latter conflict severely wounded. He retired from the Army in 1923 and was for a time in the export business, later entering the medical and veterinary supply business of Merillat-Lane, Chicago. Recalled to active duty after Pearl Harbor, he was assigned to the training of ground forces for the Army Air Corps at several stations in the United States and also made survey trips to foreign theaters of operation. He was separated from the service in 1947 and was living in Chicago at the time of his death.

Colonel Merillat was buried with full military honors at Arlington National Cemetery on April 28. Among those in attendance at the services were General Eisenhower and 15 other classmates as honorary pallbearers, and Brig. Gen. J. A. McCallam, director of the Army Veterinary Corps.

Colonel Merillat is survived by his parents, Dr. and Mrs. L. A. Merillat, his wife, Claire, and two daughters.

Veterinary College to Open.—The University of Illinois College of Veterinary Medicine will be activated this fall with the acceptance of a small freshman class, Dr. Robert Graham, dean of the college, announced in April. Pre-veterinary students were accepted at the University in 1945.

Until permanent buildings are erected to house the college, a former student residence will be used for offices and laboratories. The former veterinary pathology laboratory also is being remodeled for teaching purposes.

The College of Veterinary Medicine was established by the University of Illinois Board of Trustees in June, 1944, and building funds were appropriated by the state legislature in 1945, after curriculum and building needs had been determined by a special committee. Shortages of building materials and labor made construction impossible at that time. Further de-

lays have resulted from increased construction costs and the fact that the original appropriation is now insufficient to complete the college's building project.

A printed official announcement of the new college and its curriculum is available upon request to Dean Graham.

s/L. E. ASHELFORD.

Chicago Virus Discussion Group.—The Chicago Virus Discussion Group met at the State Department of Public Health on May 21. Drs. J. Zichls and E. A. Piszczek discussed, "Duration of Viability of Neurotropic Viruses in an Experimental Plumbing System."

s/J. E. KEMP.

Animals to be Used for Scientific Research.—The following resolution was passed by the Illinois State Veterinary Medical Association by acclaim at its annual meeting at Peoria, Ill., on Jan. 29, 1948. There was no audible dissenting vote.

1) WHEREAS, the Illinois State Veterinary Medical Association was founded upon a desire of its members to improve its methods of controlling diseases of our livestock and to safeguard the public health from diseases of animals communicable to man; and

2) WHEREAS, the depredations of homeless and unwanted dogs cost the owners of livestock approximately \$250,000 in 1946 in Illinois, and caused about 5,000 people to take the Pasteur treatment for rabies; and

3) WHEREAS, advance in veterinary science is not due to chance, but in the main is dependent upon scientific research, which at one or more stages involves intelligent animal experimentation on a large scale; and

4) WHEREAS, research in the medical sciences is at best inadequately supported by public funds, and should not be limited by unnecessary expenditure for experimental animals,

THEREFORE, BE IT RESOLVED, That the Illinois State Veterinary Medical Association approve and support the following principles and policies:

1) Public welfare demands that research in the medical sciences be continued and extended.

2) Advance in knowledge in the medical sciences would be severely handicapped without the use of animals.

3) The use of animals for the standardization and testing of drugs and biologic products is indispensable.

4) All animals in city or other dog pounds, which are unclaimed and to be killed, shall be made available to scientific research laboratories approved for that purpose by the State Department of Agriculture or by the State Department of Health, and to teaching institutions approved for that purpose by the State Department of Education.

Brucellosis Survey.—In the recently completed survey on brucellosis in Jersey County, it was noticed that the herd owners disposed of the reactors that were disclosed on the test almost immediately. It was also noted that a large number of reactors were introduced into

these herds recently, as a result of purchases made from sales barns without proper investigation as to the health status of the animals prior to purchase. This would indicate that the educational aspect of our brucellosis control program should be intensified.

s/C. E. FIDLER, *Veterinarian in Charge.*

Personal.—At the meeting of the Rotary Club of Chicago on Apr. 6, Dr. W. A. Young, managing director of The Anti-Cruelty Society, was elected as one of the four new directors of the Club.

Indiana

Northwestern Association Meets.—Thirty-five members and guests of the Northwestern Indiana Veterinary Medical Association met on April 22, at the Masonic Lodge in Remington. Dr. W. H. Timmons, Chicago, manager of the Hartford Livestock Insurance Company, was guest speaker. Dr. L. E. Andres was host, and Mrs. Andres, as hostess, entertained the ladies at her home.

s/F. H. STONE, *Public Relations Counsel.*

Veterinary Research.—The Pitman-Moore Company has purchased a 160-acre farm near Zionsville to be used for research on veterinary pharmaceutical products for large animals under actual field conditions, according to an announcement made by President K. F. Valentine. Research activities at the new site will be under the direction of Dr. G. R. Burch, formerly on the staff of Texas A. & M. College.

Iowa

Fayette County Association Has Dinner Meeting.—The Fayette County Veterinary Medical Association met at West Union, March 1, with 21 members present. Speakers on the program were:

Dr. R. M. Hofferd, pathologist, Cedar Rapids; "Baby Pig Diseases."

Dr. E. C. Ritter, Sumner: "Necrotic Volvitis of Day-Old Pigs."

Dr. G. H. Gitz, Mason City: "Convulsions of Pigs at Trough."

Dr. M. F. Frevert, West Union: "Advisory Council of the Iowa Veterinary Medical Association."

s/R. M. COCKING, *Secretary.*

Cedar Valley Veterinary Association Meets.—The Cedar Valley Veterinary Medical Association met at Black's Tea Room, Waterloo, on March 8. Thirty-one veterinarians were in attendance. Speaker of the evening was Dr. G. A. Hawthorne of Clarinda, who spoke on "Swine Erysipelas." Dr. C. C. Lawrence, Grundy Center, led the discussion which followed.

s/C. B. STRAIN, *Secretary.*

Meeting of Southeastern Association.—The Southeastern Iowa Veterinary Medical Association met on April 6 at the Hotel Harlan, Mount Pleasant for a dinner meeting. There were 28 veterinarians present, representing 13 counties. The program follows:

Dr. C. D. Lee, extension veterinarian, Iowa

State College, Ames: "Importance of the Poultry Industry." Dr. Lee discussed diagnosis, prevention, and curative treatments of fowl cholera, fowl typhoid, pullorum disease, coccidiosis, fowl laryngotracheitis, range paralysis, Newcastle disease, tuberculosis, coryza, and bronchitis, as well as parasitoid diseases.

s/M. R. BEEMER, *Secretary*.

East Central Society Meets.—The East Central Iowa Veterinary Medical Society held a dinner meeting at the Hotel Jefferson, Iowa City, Apr. 8, 1948. Fifty-two veterinarians from 18 counties attended. The following program was presented:

Dr. W. M. Lynch, Cedar Rapids: "Comprehensive Report of the Wisconsin Brucellosis Campaign." Participating in a discussion on this subject were Drs. C. L. Crider, Elkader; A. R. Stephenson, Bennett; C. C. Steele, Fairfield; R. E. Elson, Winton; A. R. Menary, Cedar Rapids; J. W. Carey, West Liberty; and T. T. Bowstead, Riverside.

Dr. Russell J. Beamer, Ottumwa, showed two reels of colored motion pictures depicting surgical operative procedure on small animals.

Dr. M. A. Emmerson, professor, Department of Obstetrics, Iowa State College, Ames: "X-rays and X-ray Therapy of Large Animals" (with illustrations).

s/O. HAIGHT, *Secretary*.

North Central Association Meets.—The North Central Iowa Veterinary Medical Association met April 22 at the Wakhonsa Hotel, Fort Dodge. The program follows:

Dr. A. K. Kuttler, U. S. BAI, in charge of brucellosis and tuberculosis eradication work, Washington, D. C.: "Recent Developments in More Uniform Procedures for Eradicating Brucellosis."

Dr. John Dick, Fort Dodge: "Differentiation Between Vaccinal Titers and Infection Titers in Brucellosis of Cattle."

Dr. Frank B. Young, Waukegan, was the leader of a panel discussion on brucellosis; other members of the panel were Drs. A. K. Kuttler, H. U. Garrett, and J. A. Barger.

The ladies were entertained by wives of Fort Dodge veterinarians at a luncheon.

s/B. J. GRAY, *Secretary*.

Recommends Ex-Officio Status for Past President.—The immediate past-president should be made an ex-officio member of the state association's executive board for one year, President John B. Bryant told the annual convention of the Iowa Veterinary Medical Association at Des Moines, Jan. 20-22, 1948. Dr. Bryant pointed out that the AVMA and at least one state association, New York, already have this policy in effect and that such an arrangement permits the retiring president to assist in carrying out projects started or approved during his term of office.

Tuberculosis Testing Lags.—The testing of cattle for tuberculosis is several years behind schedule in most parts of the state. In most areas, it will take two or more years to catch up. Hampering a drive by the State Department of Agriculture is the low pay accorded

testing veterinarians, in contrast with the comparatively high incomes of private practitioners. Dr. H. U. Garrett, state veterinarian, said that testing is going on in 68 counties at the present and he hopes to catch up with work which piled up during the war when a number of veterinarians were serving in the armed services.

Home Remedy.—An abscess on the side of a Holstein-Friesian cow ruptured, and a fork handle popped out between the eighth and ninth ribs. Dr. H. S. Lames, of Dysart, removed the stick by surgery and the cow recovered. The veterinarian surmised that a former owner put the fork handle down the cow's gullet to relieve bloat and that it got away from him.

Personal.—Dr. R. M. Young, of Parkersburg, received the award from the Parkersburg Community Club for having performed the most outstanding community work of 1947, during such projects as the fly and rat elimination campaigns.

Kansas

Meeting of Kansas City Association.—The Kansas City Veterinary Medical Association met at the Hotel Continental on Apr. 20, 1948. The following program was presented:

Dr. J. D. Ray, director of biological production and diagnosis, The Corn States Serum Company, Omaha, Neb.: "Baby Pig Diseases."

Dr. J. E. Mosler, Veterinary Clinic, Kansas State College, Manhattan: "Antihistamines in Veterinary Practice."

Dr. W. H. Mowder, Independence, Mo.: "Current Clinical Problems of Small Animal Practice."

s/EARL L. MUNDELL, *Secretary*.

Kentucky

Personal.—Dr. William Caslick, Paris, has resigned his duties as resident veterinarian at Claiborne Stud in order to devote more time to private practice and to continue research in genital diseases.

Massachusetts

Association Meetings.—The Massachusetts Veterinary Association met March 25 at the Hotel Statler. Dr. Carl W. Walter, of the Harvard Medical School, spoke on "Skin Sterilization," and led a discussion on that subject. The following were elected to membership: Drs. David E. Gibbs, Winchester, and Richard M. Hancock, Franklin. Dr. W. K. Harris called to the attention of members that veterinarians, as a group, are not collecting milk samples to be tested for mastitis.

The meeting on April 21 was also held at the Hotel Statler. Dr. Raymond C. Snyder, Upper Darby, Pa., discussed various phases of veterinary practice, illustrating his points with lantern slides and motion pictures.

s/C. LAWRENCE BLAKELY, *Secretary*.

Michigan

Western Association Meets.—The Western Michigan Veterinary Medical Association met at the Foxhead Inn, Grand Rapids, on March

18. Dr. C. F. Clark, state veterinarian, led a discussion on brucellosis.

At the meeting on April 15, at Martini's Chicken Dinner Place, Comstock Park, Dr. T. T. Chaddock of Fromm Laboratories discussed Green's distemperoid vaccine and illustrated it with movies and slides. There were approximately 65 veterinarians and their wives in attendance.

S/FRANK THORP, JR., *Secretary*.

Meetings of Southeastern Association.—The March 10 meeting of the Southeastern Michigan Veterinary Medical Association was held at Club 58, Detroit. Dr. R. Olsen, pathologist at St. Joseph Mercy Hospital, Pontiac, spoke on "Comparative Vertebrate Anatomy and Pathology," and "Interpretation of White and Differential Blood Counts."

On April 14 the association met in the Detroit Leland Hotel. A panel discussion on "Leptospirosis" was presented by Drs. E. K. Sales, L. Sholl, and J. P. Newman of Michigan State College, East Lansing. Dr. J. L. Davidson of Upjohn Company, Kalamazoo, also participated in the discussion. Approximately 50 veterinarians were present.

The May 12 meeting was held in the Herman Kiefer Hospital, Detroit. Dr. S. F. Scheidy of Sharp & Dohme discussed "Recent Developments in Sulfonamide Therapy," and Dr. Stephen Elko reported on the AAHA meeting in Atlanta.

S/FRANK THORP, JR., *Secretary*.

Michiana Association Meets.—The Michiana Veterinary Medical Association met at the Hotel Elkhart, Elkhart, Ind., May 13, 1948. After a film on Mexico had been shown, members completed plans for the spring clinic which was held in Wakarusa, Ind., May 25.

S/M. J. COURT, *Secretary*.

Minnesota

Meeting of Southern Association.—The Southern Minnesota Veterinary Medical Association meeting in Austin on April 29. The program follows:

Inspection of new Swine Research Laboratory.

Dr. Geo. A. Young, Jr., Hormel Institute: "Further Research on Baby Pig Mortality."

Dr. J. D. Ray, Corn States Serum Co., Omaha, Neb.: "Baby Pig Diseases."

Round table discussion on pig diseases.

S/J. B. FLANARY, *Secretary*.

Missouri

Midwest Veterinary Conference.—Jointly sponsored by the Kansas and Missouri Veterinary Medical Associations, the Midwest Veterinary Conference will be held in Kansas City's Municipal Auditorium, June 29-30.

Fifteen major lectures and discussions by outstanding veterinarians will be climaxed by a seven man panel under Dr. Thomas Crispell, Parsons, Kan., on new therapeutic measures and treatment methods.

A program has been arranged for the ladies.

S/A. H. QUIN, *Secretary*.

Southeast Association Holds All-Day Meeting.—The first all-day meeting of the South-

east Missouri Veterinary Medical Association, since before the war, was held on April 7 at Dexter, Mo. Dr. E. G. Bailey, Sr., was host and program committee chairman. The meeting consisted mainly of a clinic with many interesting cases presented for diagnosis, treatment, and discussion. The motion picture "Valiant Years" was shown.

S/F. A. STEPP, *Secretary*.

Personal.—Dr. G. O. Sigars (KSC '46) was appointed veterinary inspector of the St. Joseph Stockyards to succeed Dr. A. W. Heffin. Dr. Sigars is also an alumnus of the University of Missouri where he received his B.S. degree in 1937. He served as county farm adviser for several Missouri counties before graduating from Manhattan.

Nebraska

Meeting of Executive Committee.—The Executive Committee of the Nebraska State Veterinary Medical Association met April 11 in Lincoln. Plans were made for the annual meeting of the Association and exhibitors were requested to contact Dr. Skidmore, Lincoln, for display space.

S/L. V. SKIDMORE, *Secretary*.

Personal.—Dr. L. Van Es, Lincoln, was tendered a testimonial dinner on April 16, by the Block and Bridle Club in recognition of his service to the livestock industry, particularly in the state of Nebraska. Dr. W. L. Boyd, chief, Division of Veterinary Medicine, University of Minnesota spoke on "Progress in Veterinary Medical Education." The AVMA was represented at the dinner by Dr. J. G. Hardenbergh.

New Hampshire

Feeding Test.—Hampshire Hills Farms Company at Wilton is experimenting with dried sweet potatoes as a feed for dairy cows, to find out whether such feed will increase the vitamin A content of milk and whether it will affect the color.—*Certified Milk*, April, 1948.

New York

City Association Meets.—The Veterinary Medical Association of New York City met in the Salle Moderne on April 7. The program follows:

Symposium: "Canine and Feline Nutrition" (with illustrations). Participating were Drs. Mark L. Morris, consultant in animal nutrition, Raritan Laboratories, Inc., New Brunswick, N. J., moderator; Paul H. Phillips (Ph.D.), Department of Biochemistry, University of Wisconsin, Madison, "Canine Nutrition"; F. I. Nakamura, Raritan Laboratories, Inc., "Protein Requirements of Adult Dogs and the Protein Quality of Commercial Dog Foods"; K. Keane, Raritan Laboratories, Inc., W. A. Krehl (Ph.D.), Yale Nutrition Laboratory, Department of Physiochemistry, Yale University, New Haven, Conn., "Feline Nutrition."

New members accepted at this meeting were Drs. Harold M. Smith, Bernard W. Rosen, Sydney Rosenberg, and Roger Grossman.

S/C. R. SCHROEDER, *Secretary*.

Pennsylvania

Bucks Montgomery Meeting.—The Bucks Montgomery Veterinary Medical Association met April 14 at the Moose Home in Doylestown. Guest speaker, Dr. S. Scheidy, research director, Sharp & Dohme, Inc., Glenolden, spoke on "Recent Developments in Sulfonamide Therapy."

s/J. G. SHUTE, *Secretary.*

Oklahoma

Opens New Veterinary School.—The new Division of Veterinary Medicine of the Oklahoma A. & M. College opened on Feb. 29, 1948. Thirty students, maximum number the division can enroll until the fall term, started their freshman work at that time. The first year studies will include gross anatomy, study of animal bone and tissue structure, and microscopic study of animal tissue.

The veterinary medical center is just west of the campus in a large structure which houses a histology laboratory, anatomy and dissecting room, technician quarters, cold storage room for animals, deep-freeze unit, and other equipment.

The school will operate during the summer of 1948 but not during subsequent summers. Approximately 50 students will be accepted at the fall enrollment, Dean C. H. McElroy has announced.

Puerto Rico

Dr. Lopez in the News.—*Ilustrado*, the picture magazine of Puerto Rico, devotes eight pages of its issue of Feb. 21, 1948, to a series of pictures showing the modern methods used by a veterinarian in relieving the suffering and treating the ailments of animals. Captions amplify the pictorial story.

The story shows pictures of a dog about to

be hit by an automobile, lying beside the car after the accident, carried into the veterinary hospital, examined with a stethoscope, anesthetized by means of an intravenous injection, then x-rayed for detection of fractures, and transferred to the surgery for correction of the damage done. Just to show that there were no unpleasant memories, the patient is shown shaking hands with Dr. O. A. Lopez Pacheco when about to be discharged from the hospital.

Other illustrations show an x-ray plate of a Stader splint in position after reduction of a



Fig. 2—Dr. Pacheco performing an exploratory laparotomy in his excellent operating room.

fracture of the femur, a Thomas splint being applied to a foreleg of a dog, a horse being treated with short wave inductothermia for generating artificial fever to stimulate circulation of blood and removal of toxins, and a



Fig. 1—Dr. Lopez Pacheco performing a fluoroscopic examination to determine the nature and extent of injury sustained by the victim of an accident.



Fig. 3—Inductothermia. A short wave therapy apparatus used to generate deep heat and to stimulate circulation.

dog hospitalized for corneal ulcers and a complicating anemia resulting from nutritional deficiency.

The story is presented in such a way that the general public will become more aware of the activities of a veterinarian and of the facilities, instruments, and methods used by progressive members of the profession.

Puerto Rican Veterinarians Meet at Ponce.—The Sociedad Insular de Médicos Veterinarios held a meeting at the Club Deportivo de Ponce (Ponce Sporting Club) on March 14, 1948. Dr. Clinton N. Kaminis (API '43), who is connected with Sharp & Dohme, was guest at the meeting and luncheon. This is the first time that the association met outside of the capital and the meeting was so successful that similar ones are planned for the future.

The annual meeting of the Sociedad Insular de Médicos Veterinarios will be held at the assembly room of the Department of Agriculture and Commerce, Stop 19, Santurce, Puerto Rico, on June 5-6. The business session is scheduled for Saturday afternoon, June 5, starting at 2:00 p.m. The scientific session will take place on Sunday morning, starting at 9:00 a.m. A luncheon will follow.

s/O. A. LOPEZ PACHECO, *Secretary*.

Puerto Rico Proposed as Site for Foot-and-Mouth Disease Laboratory.—Congressman Ernest K. Bramblett (California) recently suggested in Congress that Puerto Rico be considered as a site for the foot-and-mouth disease laboratory. His proposal met with an energetic opposition from the local veterinarians, voiced by the president of the Sociedad Insular de Médicos Veterinarios, Dr. O. A. Lopez-Pacheco.

In a statement that prompted editorials and editorial cartoons in the leading Puerto Rican newspapers, Dr. Lopez cited the different outbreaks of the disease in the United States and the economic losses caused by them. The fact that the disease does not exist in Puerto Rico, plus the advantageous geographical position to ward it off were mentioned; also the facts that Puerto Rico is too densely populated and that the livestock industry is worth more than five times the amount to be invested in the laboratory, \$20,000,000, were emphasized.

Representative Bramblett, in consideration of the protest from Puerto Rico, retired his proposal.

s/O. A. LOPEZ PACHECO, *Secretary*.

South Carolina

Association Officers.—Officers of the South Carolina Association of Veterinarians which will hold its summer meeting July 1-2 at the Fort Sumter Hotel in Charleston are: Drs. W. F. Rawlinson, *president*; S. M. Witherpoon, *vice-president*; R. L. Willis, *president-elect*; and R. A. Mays, *secretary-treasurer*.

s/R. A. MAYS, *Secretary*.

Tennessee

Meeting of State Association.—The fortieth annual meeting of the Tennessee Veterinary Medical Association was held April 5-6 at the Andrew Johnson Hotel, Knoxville. The program follows:

Dr. A. A. McMurray, Columbia: "Progress of Mastitis Control in Tennessee."

Dr. C. E. Kord, Nashville: "Bang's Disease Control Program in Tennessee."

Dr. C. M. Heflin, Baton Rouge, La.: "Swamp Fever," and "Anaplasmosis."

Dr. W. J. Gibbons, Alabama Polytechnic Institute, Auburn: "X-Disease of Cattle" (with illustrations), and "Sterility in Cattle."

Dr. Dennis Sikes, University of Tennessee, Knoxville: "Artificial Insemination."

Participating in a small animal panel were Drs. W. O. Greene, Nashville; Tyler Young, Kingsport; H. W. Hayes, Knoxville; and G. P. Hatchett, Jr., Chattanooga.

Dr. R. C. Klussendorf, assistant executive secretary of the AVMA, Chicago, Ill., addressed the group, and the film "Valiant Years" was shown.

Officers elected for 1948 were: Drs. W. O. Greene, Nashville, *president*; W. R. Lawrence, Dyersburg, *first vice-president*; H. W. Hayes, Knoxville, *second vice-president*; and H. W. Nance, Lawrenceburg, *secretary-treasurer*.

s/H. W. NANCE, *Secretary*.

Texas

Veterinary Conference.—The tentative program for the conference for veterinarians, to be conducted by the School of Veterinary Medicine, A. & M. College of Texas, on June 17-18 at College Station, includes the following subjects: anaplasmosis, rabies control, digestive disturbances in dairy cattle, foot-and-mouth disease, Newcastle disease, small animal orthopedics, gastrointestinal parasites of cattle, bovine surgery, injuries in the region of the stifle, and laboratory diagnosis.

s/R. D. TURK, *Chairman of the Program committee*.

West Virginia

Five-State Brucellosis Experiment.—Dr. T. C. Green, of Charleston, state veterinarian of West Virginia, has been named director of a five-state joint experiment for determining the value of Huddleson mucoid vaccine as a means of preventing bovine brucellosis.

The experiment, first of its kind to be inaugurated by an interstate group, will be under the auspices of the West Virginia Department of Agriculture. State veterinarians of Maryland, Ohio, Pennsylvania, Virginia, and West Virginia will direct the experiments at Victor Farms.

Mr. R. J. Funkhouser, industrialist and owner of Victor Farms, Ranson, W. Va., is furnishing a 160-acre farm and all building and feed facilities for carrying out the experiment. In addition, he has donated \$20,000 for the purchase of livestock and other materials required in the experiment.

Sixty-five heifers, 8 to 10 months old, are being selected from brucellosis-free herds for the experiment scheduled to begin on or about June 1.

Associate directors of the experiment include Dr. H. C. Glvens, state veterinarian of Virginia; Dr. H. G. Geyer, state veterinarian of Ohio; Dr. C. P. Bishop, director of the Bureau of Animal Industry of Pennsylvania;

and Dr. A. L. Brueckner, director of Livestock Sanitary Service, College Park, Md.

The technical committee is headed by Dr. B. H. Edgington, of the Ohio experiment station, Columbus. Members are Dr. W. L. Bendix, assistant state veterinarian of Virginia; Dr. Norman O. Olsen, professor of animal pathology, West Virginia University; Dr. I. D. Wilson, head, Department of Biology, Virginia Polytechnic Institute; Dr. W. B. Bell, Department of Biology, Virginia Polytechnic Institute; and Dr. Brueckner.

The planning, building, and equipment committee is under the joint direction of Dr. W. L. Bendix of Richmond, Va., and Dr. Leo J. Poelma, of the University of Maryland. The experimental herd will be under immediate control of a veterinarian stationed at the farm.

Wisconsin

Spring Meeting of N.W.V.M.A.—The North-eastern Wisconsin Veterinary Medical Association met on May 6 at the Hotel Appleton in Appleton. Guest speaker was Dr. E. C. Jespersen, Omro, whose subject was, "Caesarean Section in the Bovine."

S/WILLIAM MADSON, *Secretary*.

Southeastern Association Meets.—The Southeastern Wisconsin Veterinary Medical Association met at the Community Hall in Waterloo April 27. After the business meeting, members and their wives were entertained at a banquet.

S/J. O. McCox, *Secretary*.

Postgraduate Conference.—A Veterinary Postgraduate Conference will be held at the University of Wisconsin, Madison, June 22-23, 1948. The following program has been planned:

Staff of the Department of Veterinary Science: "Reports of Progress in Research."

Dr. W. Wisnicky, Fond du Lac: "Recent Developments in Large Animal Medicine."

Dr. W. D. Stovall (M.D.), president, Wisconsin Medical Association, Madison: "Environment and Disease."

Dr. W. A. Hagan, president of the AVMA, and dean, New York State Veterinary College, Ithaca, N. Y.: "Control of Acid-Fast Diseases," and "Advancement of Veterinary Research and Education."

Mr. C. A. Elvehjem, chairman, Biochemistry Department, University of Wisconsin, Madison: "Major Advances in Animal Nutrition."

Dr. C. L. McGinnis, Peoria, Ill.: "Progress in Small Animal Medicine," and "Small Animal Surgery."

Dr. C. D. Stein, U. S. BAI, Washington, D. C.: "Equine Infectious Anemia."

Mr. R. G. Stephenson, Cedarburg, Wis.: "Wisconsin's Fur Industry" (with illustrations).

Dr. C. F. Clark, state veterinarian of Michigan, Lansing: "Bovine Sterility Problems."

Dr. T. H. Ferguson, Lake Geneva, Wis.: "Cattle Surgery."

There will be demonstrations in artificial insemination, diagnosis and treatment of parasitism, mastitis detection and therapy, bleeding of swine, diagnosis and immunization in poultry, and postmortem examinations.

S/C. A. BRANDLY, *Chairman*.

Brucellosis Legislation.—The 1947 legislature passed a bill which makes it unlawful for a farmer landlord to permit his animals to be commingled with those of a tenant unless all of the owner's cattle, other than official vaccinates, are negative to the brucellosis test. It is the purpose of the new statute to make the laws prohibiting the movement of infected and untested cattle apply with like effect to the animals of the owner and those of the tenant where each furnishes part of the herd under the terms of the lease.

Other new legislation specifically authorizes blood testing and calfhood vaccination on an area plan without cost to the owner. The area may be smaller than a county, but not less than a township. Any cattle owner who does not sign or wish to participate in the program will not be forced to do so.

Posthumous Artificial Insemination.—Not to omit a noteworthy achievement of artificial insemination of cows, veterinary literature should not skip the successful insemination of 3 cows, about seven years ago at the Fred Pabst farm at Oconomowoc, with semen taken from a bull after death. The bull was 12-year-old Sir Bess Ormsby Fobes, 73rd, which was knocked down as a hopeless cripple to Fred Pabst for \$150 at a Waterloo, Iowa, sale, a tiny fraction of his health value. Two of the posthumous calves were bulls and these, as time was to prove, preserved Sir Bess's blood lines for posterity. For this foresight and others, the editor of the *Holstein-Friesian World* remarked at a testimonial dinner for Mr. Pabst: "No breeder in this country has made a greater contribution to the breed. . ."

FOREIGN

Egypt

Cholera Epidemic Controlled.—The control of the cholera epidemic in six weeks (*Am. J. Pub. Health*, Feb., 1948) was a remarkable demonstration of international coöperation in the face of such dangers. Among the steps taken was the airplane shipment of 52 tons of vaccine, blood plasma, and other supplies from New York by the World Health Organization (WHO), which also supervised the methods and equipment essential to the successful treatment and prevention of cholera. The official periodical of WHO is published in the five languages of the United Nations. Its headquarters are at 350 Fifth Avenue, New York City.

England

R.A.V.C. Point-to-Point.—The annual race for the R.A.V.C. Point-to-Point Challenge Cup was run on Apr. 3, 1948, at Melton Mowbray, in the Quorn Hunt Point-to-Point Meeting. The race was for horses the property of, or government horses hired by, officers R.A.V.C. or remount officers who have been attached to the R.A.V.C. since the amalgamation of the two services, either serving, retired, territorial, or temporary.

S/MAJOR A. D. SETON, *R.A.V.C.*

France

Disadvantages of Foot-and-Mouth Disease Vaccination.—Notwithstanding that Waldmann's foot-and-mouth disease vaccine successfully immunizes cattle and sheep against the infection for nine months or so, the slaughter of affected and exposed animals, where reasonably feasible, stands on a higher plane than vaccination.

The disadvantages of vaccination are numerous, not the least of which is the cost. In 1945, the cost at the laboratory was 2,000 francs per liter, and the dose for adult cattle is 60 cc., for sheep, hogs and goats, 20 cc., and for calves and young animals, around 40 cc. In a campaign waged along the Spanish border in 1944 and 1945, 5,000 liters were injected into 255,000 animals by 60 veterinarians and 55 veterinary students. Moreover, vaccine more than a year old loses so much immunizing power that the dose has to be doubled. The regular, as well as the large, doses produce numerous local reactions of a serious nature (abscess, necrosis, septicemia), due to the content of aluminum hydroxide which has the abscess-forming properties of terebinthina (turpentine).

The vaccine must be injected strictly subcutaneously at places as remote as possible from muscle tissue. The massive dose injected subcutaneously over subjacent muscles is absorbed by the muscle tissue and causes a violent reaction. The dewlap of cattle and the loose skin in front of the sternum in sheep are the chosen sites of injection. To perform the vaccinal procedure properly, cattle and sheep have to be cast and secured. Details of the procedure and the results obtained are described in the January, 1948, issue of *Revue de Médecine Vétérinaire*.

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The World's Oldest.—Prof. Jean Verge, who was elected president of the Académie Vétérinaire de France for 1948, pointed out in his inaugural address that although the *Académie, per se* is but twenty years of age, it is in reality a continuation of the 124-year-old *Société Centrale de Médecine Vétérinaire* which in 1928 was transformed to an officially instituted academy of science. The president emphasized that the end of these twenty eventful years can be celebrated for the "rediscovery of BCG" which sprang from the membership and now brings a new approach to the problem of tuberculosis the world over.

The membership of this resourceful organization is restricted, constitutionally, to titular members who must reside within 150 kilometers of Paris; a few associate members, native and foreign, chosen from outstanding figures of the veterinary sphere; and correspondents, national and foreign, elected on the recommendations of titular members. John R. Mohler, former chief of the U. S. BAI, is one of the five foreign associate members. The others are Cabot (London), Lanfranchi (Bologna), Marek (Budapest), and Skriabine (Moscow). Of the 28 foreign correspondents, the United States is represented by Raymond A. Kelsner, dean of the School of Veterinary Medicine, University of Pennsylvania, and L. A. Merillat, editor-in-chief of the *Journal of the American Veterinary*

Medical Association and American Journal of Veterinary Research. Others of the 28 who are not strangers to readers of English veterinary literature are Buxton (London), De Bleeck (Holland), Flückiger (Switzerland), Magnusson (Sweden), Stefsanski (Poland), Du Toit (South Africa), and Van Goldsenhoven (Belgium). Through its mechanism, the *Académie* not only keeps in constant touch with the veterinary world but also backs the publication of two widely circulated journals.

Germany

Avian Pneumoencephalitis Virus.—Dr. J. Fortner, Institute of General Hygiene (formerly Reichsgesundheitsamt) in Berlin-Dahlem, reports, through Lt. Col. Frank A. Todd, receipt of a California strain of Avian Pneumoencephalitis (Newcastle Disease) virus from the U. S. BAI. He was able to grow the virus without difficulty on 8- to 10-day-old chicken embryos, and to infect 1- to 2-year-old Leghorn hens with this virus.

The California virus was found to be immunologically identical with Becker's atypical fowl pest virus, but of lower virulence. Becker virus killed all of the injected chickens, while some survived when injected with California virus. Becker virus produced a septicemia and was easily transmitted from bird to bird in high dilution of tissue emulsions from the spleen and brain. California virus produced an outstanding encephalitis picture, but could not be transmitted from bird to bird by inoculation with tissue emulsions.

S/L. T. GILTNER.

Indochina

Homeopathic Treatment of Warts.—Horny warts in calves used in the production of rinderpest vaccine were successfully removed at the Pasteur Institute of Nhatrang, by means of homeopathic treatment in the place of the usual allopathic methods: surgery, ligation, caustics. The base product consisted of tincture of thuja, nitric acid, and causticum, a specialty made of lime and potash, said to be composed of calcium oxide and potassium bisulfate. After trying several homeopathic dilutions the following was adopted: 2 drops of the base to 100 drops of double distilled water (first dilution); 2 drops of first dilution to 100 drops of double distilled water (second dilution); then 2 drops of second dilution to 100 drops of double distilled water (third dilution). Each of these dilutions is made in a neutral vial that is shaken vigorously for a few minutes in strictly homeopathic fashion and for immediate use. This mixture is given three times on consecutive days or at intervals of several days. Of 15 yearlings weighing 100 to 120 kg., all but 2 were completely cured in three weeks, at different times. Some of the warts dried at the base, flattened out, and dropped off in a couple of days or sooner; others diminished in size and disappeared more slowly. Always, improvement could be seen within two days. The average time of recovery was five to seven days. Two required a fourth treatment and 2 were totally refractory.

The use of thuja, nitric acid, or the causticum

alone failed. The number of warts varied from 156 on 1 calf, countless small ones on 1, and only five on another. The author (J. Vittoz) suggests this treatment for multiple papillomas in the mouths of dogs.

Korea

Refresher Course for Korean Veterinarians.—Licensed veterinarians from each of South Korea's eight provinces attended a refresher course at Seoul National University last winter, the first of its kind to be given in the "Land of the Morning Calm." Each of the 145 attending veterinarians received a copy of the "Veterinarian's Creed" by Dean Dykstra, Kansas State College, translated into Korean for the first time by Professor Ahn. Dr. B. D. Blood says: "If we can put across the ideals set forth in the creed, our job in Korea will be at least 50 per cent easier. The greatest difficulty we face is the lack of ethics, professional pride, and practice of the Golden Rule. The translator and all Koreans have been favorably impressed with the creed, and the fact that it lists seven main points always insures an enthusiastic reception, since 7 is considered to be an omen of good fortune."

The six-day course, repeated at intervals during January and February, included a review in diagnosis and treatment of animal diseases, use of new drugs in animal medicine, and principles of meat inspection. Slides and especially prepared film strips, demonstrations, and other

visual aids accompanied the lectures.

Sponsors of the course were the Bureau of Veterinary Affairs, National Public Health and Welfare Department, and the recently opened College of Veterinary Medicine of Seoul Na-

獸醫師의 信條

나리獸醫은 忠實한을爲한 職業이다함을 알며 教育程度도 人類에 對한 知識과 技術을

충실히 實踐하여야 한다.

二. 疾病과 仁愛로써 醫治하는 動物의 無用한 痛苦를 防止하여야 한다.

三. 手術을 할 때에 誠心誠意로 手術無用한 痛苦를 防止하여야 한다.

四. 恒常 良心과 嚴正한 判斷에 依하여 모든 일을 處理하여야 한다.

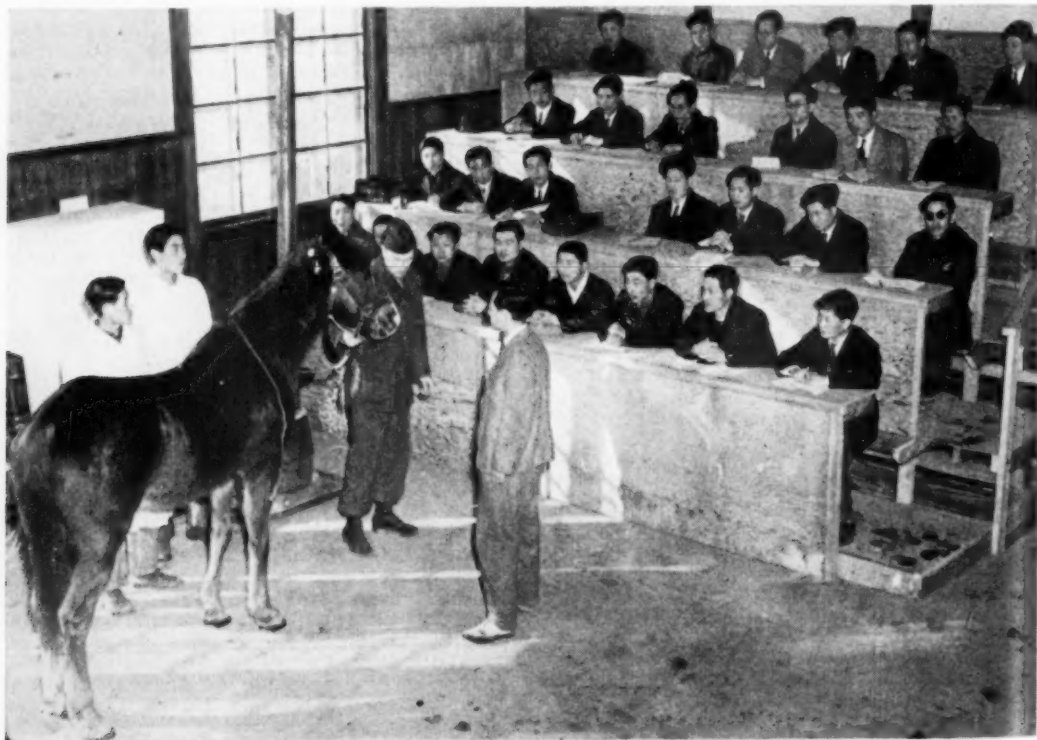
五. 進德修業을 위하여 自己의 知識技術을 向上시켜 모든 醫術을 精進하여야 한다.

六. 서로 敬愛하고 서로 도우므로써 自己의 同僚들과 協力하여야 한다.

七. 自己의 名譽를 守衛하여야 한다. 所得보다도 應得의 多少로 自己의 功勞를 評價하여야 한다.

The Veterinarian's Creed in Korean.

tional University. The course was conducted by Dr. B. D. Blood of Wabash, Ind., advisor to the Bureau of Veterinary Affairs and a graduate of Colorado A. & M. College, Fort Collins, and Capt. William C. Brooks of Jefferson, Texas, U. S. Army Veterinary Corps, a graduate of Texas A. & M. College, College Station.



—Photo by U. S. Army Signal Corps

Lecturing to licensed Korean veterinarians, who came from the provinces to attend a refresher course at the new College of Veterinary Medicine in Seoul, are Capt. William G. Brooks of the Army Veterinary Corps, Jefferson, Texas, and Professor Lee Cheng Ni, professor of surgery and medicine.

New Zealand

More Cows Than People.—New Zealand has about 200,000 more dairy cows than people. Approximate figures are 4,650,000 head of cattle, of which about 1,850,000 are dairy cows. The population is only 1,650,000.

According to *Certified Milk* (April, 1948), this nation's annual production of butterfat runs between 430 million and 470 million lb., an output so high that New Zealand has to manufacture her own high-capacity butter churns, because those manufactured elsewhere are not large enough to accommodate the daily production. In normal times, the per capita butter consumption is about 42 lb. a year—higher than any other country—but current rationing has reduced this amount to about 26 lb.

Comparatively, this country's annual butter production is about one-fourth that of the United States, which has a population about 90 times greater, and New Zealand's cheese exports are larger than those of any other country. England gets most of the surplus.

Shetland Islands

Bovine Tuberculosis Eradicated.—Veterinarians, agriculture officials, and livestock owners held a dinner in Lerwick on Jan. 30, 1948, to celebrate the eradication of bovine tuberculosis from the Shetland Islands.

Shetland is the first county area in Britain to be declared free of the disease, *The Veterinary Record* reported (Feb. 21, 1948). Success of the eradication project was attributed to "splendid cooperative effort by the 2,000 owners of cattle in Shetland."

South Africa

New Disease of Ducks.—An apparently new disease, affecting Muscovy ducks only, has been reported in the Durban area of South Africa. The symptoms are loss of appetite, diarrhea and, in some cases, a blood-stained fluid exuding from the nostrils. Birds 4 to 6 months of age are affected. Death frequently occurs within a few hours after initial symptoms appear; mortality is about 25 per cent. Veterinarians think it is a virus disease, probably transmitted by mosquitoes.—*World's Poult. Sci. J.*, Jan.-Mar., 1948.

STATE BOARD EXAMINATIONS

Nebraska—The Nebraska Board of Examiners in Veterinary Medicine and Surgery will hold examinations at the State Capitol in Lincoln, Neb. on June 22-23, 1948, beginning at 8:30 a.m. Applications may be secured from the office of the Bureau of Examining Boards, 1009 State Capitol, Lincoln, and must be filed with the same office at least fifteen days prior to the date of the examination. Applicants must furnish a 4 in. by 5 in. photostatic copy of their veterinary degree, a recent photograph, and the \$20 examination fee with application. Oscar F. Humble, Director, Bureau of Examining Boards, Lincoln, Neb.

Florida—The Florida State Board of Veterinary Examiners will hold examinations on June 28-30, 1948, at the Seminole Hotel in Jacksonville, Fla. Dr. H. C. Nichols, Ocala, Fla., secretary.

Utah—The Utah State Veterinary Examining Board will hold examinations on July 12-13, 1948, at the Capitol Building, Salt Lake City, Utah. For application blanks address Mrs. Rena B. Loomis, Registration Department, Room 326, Capitol Building, Salt Lake City, Utah.

Illinois—The Illinois State Department of Registration and Education will hold a veterinary examination in Chicago, Sept. 27, 1948. Applications should be on file in this department at least fifteen days prior to date of examination. Fred W. Ruegg, superintendent of registration, Springfield, Ill.

COMING MEETINGS

Alabama Veterinary Medical Association. Annual conference. Auburn, Ala. June 9-11, 1948. R. S. Sugg, 408 W. Magnolia St., Auburn, Ala., state veterinarian.

Oklahoma Veterinary Medical Association. Summer meeting. Campus of Oklahoma A. & M. College, Stillwater. June 14-15, 1948. Lewis H. Moe, 408 Life Sciences Bldg., secretary.

North Dakota Veterinary Medical Association. Hotel Clarence Parker, Minot, N. Dak., June 14-15, 1948. F. M. Bolin, North Dakota Agricultural College, College Station, Fargo, N. Dak., secretary.

American Dairy Science Association. University of Georgia, Athens, Ga., June 14-16, 1948. R. B. Stoltz, Ohio State University, Columbus 10, Ohio, secretary.

Ohio State University. Annual conference for veterinarians of the College of Veterinary Medicine. Ohio State University, Columbus, Ohio. June 16-18, 1948. Walter R. Krill, dean.

Michigan State Veterinary Medical Association. Annual meeting. Michigan State College, East Lansing, Mich., June 17-18, 1948. B. J. Killham, Michigan State College, East Lansing, Mich., secretary.

Texas A. & M. College conference for veterinarians. School of Veterinary Medicine, A. & M. College of Texas, College Station. June 17-18, 1948. R. D. Turk, chairman.

California State Veterinary Medical Association. Annual meeting. Anderson Hotel, San Luis Obispo, June 19, 1948. Charles Travers, 16th and Mission Sts., San Francisco 3, executive secretary.

American Society for the Study of Sterility. Annual meeting. Congress Hotel, Chicago, Ill., June 21-22, 1948. John O. Haman, 490 Post Street, San Francisco 2, Calif., secretary.

Washington, State College of. Conference for Veterinarians. College of Veterinary Medicine, Pullman, June 21-23, 1948. Dr. R. E. Nichols, dean.

- University of Wisconsin Veterinary Postgraduate Conference. University of Wisconsin, Madison, Wis., June 22-23, 1948. C. A. Brandly, Department of Veterinary Science, Room 210, Genetics Bldg., University of Wisconsin, Madison, chairman.
- Maryland State Veterinary Medical Association. Annual meeting. Hotel George Washington, Ocean City, Md. June 25-26, 1948. J. Walter Hastings, Sr., Cambridge, Md., secretary.
- Montana Veterinary Medical Association. Annual meeting. Missoula, Mont., June 28-30, 1948. E. A. Tunnick, Veterinary Research Laboratory, Bozeman, Mont., secretary.
- North Carolina State Veterinary Medical Association. Annual Meeting. State College, Raleigh, N. C. June 29-30, 1948. Dr. J. H. Brown Tarboro, N. C., secretary-treasurer.
- Midwest Veterinary Conference, sponsored by Kansas and Missouri Veterinary Medical Associations, Municipal Auditorium, Kansas City, June 29-July 1, 1948. Dr. G. L. Dunlap, 800 Woodswether Road, Kansas City, Mo., chairman.
- South Carolina Association of Veterinarians. Summer meeting. Fort Sumter Hotel, Charleston, S. Car., July 1-2, 1948. R. A. Mays, Room 413 Calhoun State Office Bldg., Columbia 10, S. Car.
- Kentucky Veterinary Medical Association, Louisville, Ky., July 14-15, 1948. T. P. Strittmatter, Jr., 1034 Monmouth St., Newport, Ky., secretary-treasurer.
- American Veterinary Medical Association. Palace Hotel, San Francisco, Calif., Aug. 16-19, 1948. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.
- American Association for the Advancement of Science. Centennial Meeting, Washington, D. C., Sept. 13-17, 1948. J. M. Hutzel, 1515 Massachusetts Ave., N.W., Washington 5, D. C., assistant administrative secretary.
- Southeast Missouri Veterinary Medical Association. J. V. Moore's Animal Hospital, Hayti, Mo., Sept. 29, 1948. F. A. Stepp, 405 N. St., Sikeston, Mo., secretary.
- Purdue University. Annual Short Course for Veterinarians. Purdue University, Lafayette, Ind., Oct. 6-8, 1948. C. R. Donham, Department of Veterinary Science, Purdue University, head.
- U. S. Livestock Sanitary Association. Shirley Savoy Hotel, Denver, Colo., Oct. 13-15, 1948. R. A. Hendershott, 1 West State St., Trenton 8, N. J., secretary.
- Eastern Iowa Veterinary Association. Annual meeting. Hotel Montrose, Cedar Rapids, Iowa. Oct. 14-15, 1948. Laurence P. Scott, Waterloo, Iowa, secretary.
- New England Veterinary Medical Association. Annual meeting. Boston, Mass., Oct. 14-15, 1948. C. Lawrence Blakely, 180 Longwood Ave., Boston, Mass.
- Executive Board of the American Public Health Association. Annual meeting at Boston, Mass., Nov. 8-12, 1948. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, N. Y., executive secretary.
- American Society of Animal Production. Annual meeting. Sherman Hotel, Chicago, Ill., Nov. 26-27, 1948. H. M. Briggs, Oklahoma A. & M. College, Stillwater, Okla., secretary.
- Nebraska State Veterinary Medical Association. Annual meeting. Cornhusker Hotel, Lincoln, Nebr., Dec. 8-9, 1948. L. V. Skidmore, College of Agriculture, Lincoln 1, Nebr., secretary.
- Illinois State Veterinary Medical Association. Annual meeting. Abraham Lincoln Hotel, Springfield, Ill., Jan. 26-28, 1949. A. G. Misener, 6448 N. Clark St., Chicago 26, Ill., secretary.
- Chicago Veterinary Medical Association. Palmer House, Chicago, Ill., the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.
- Houston Veterinary Medical Association, Houston, Tex., the first Thursday of each month. Edward Lepon, Houston, Tex., secretary-treasurer.
- Keystone Veterinary Medical Association. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., the fourth Wednesday of each month. Raymond C. Snyder, N. W. Cor. Walnut St. and Copley Rd., Upper Darby, Pa., secretary.
- Massachusetts Veterinary Association. Hotel Statler, Boston, Mass., the fourth Wednesday of each month. C. L. Blakely, Angell Memorial Animal Hospital, 180 Longwood Ave., Boston, Mass., secretary-treasurer.
- New York City Veterinary Medical Association. Hotel Pennsylvania, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.
- Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.
- Saint Louis District Meetings. St. Louis, Mo., the first Friday of June and November, W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Foreign Congresses

- First International Congress of Physiology and Pathology of Animal Reproduction and Artificial Insemination. Milan, June 23-30, 1948. Prof. Telesforo Bonadonna, Via Fratelli Bronzetti 17, Milan, Italy, secretary-general.
- International Congress of Genetics. Stockholm, July 7-14, 1948.

International Congress of Zoölogy. Paris, July 21-27, 1948.

World's Poultry Congress. Copenhagen, Denmark, Aug. 20-25, 1948. Secretariat General, Axelborg, Copenhagen 5, Denmark.

National Veterinary Medical Association of Great Britain and Ireland. Southport, England, Sept. 8-15, 1948. F. Knight, 36, Gordon Sq., London, W. C. 1, general secretary.

VETERINARY MILITARY SERVICE

Dr. Blake to Head Committee on Medical Science.—Dr. Vannevar Bush, chairman of the Research and Development Board of the National Military Establishment, has announced the appointment of Dr. Francis G. Blake, Sterling Professor of Medicine, Yale University, as chairman of the newly formed Committee on Medical Science. Dr. Blake is well known for his investigations on pneumonia, penicillin therapy, and epidemic diseases. He is also consultant to the Surgeon General of the Army and of the Army Epidemiological Board, and a member of the National Research Council Committees on Medicine and Chemotherapy.

More Reserves to be Assigned to Active Duty.—Authority has been granted to the Army Medical Department to immediately place 300 additional Medical Service Reserve officers on extended active duty, it was announced by Major General Raymond W. Bliss, The Army Surgeon General. The recent formation of the Medical Service Corps is one phase of a long-range program designed to provide the highest possible standard of medical care for the U. S. Army, with a minimum number of physicians required in administrative positions or performing duties properly belonging to medical allied sciences.

Colonel Egan on Program of British Association.—Col. Harold E. Egan, V. C., U. S. A., senior veterinarian on the staff of the Theater Surgeon, Headquarters, European Command, will take part in the program of the annual congress of the National Veterinary Association of Great Britain and Ireland in Southport, England, Sept. 8-15, 1948. Colonel Egan was designated to attend the meeting following an invitation transmitted to the American Veterinary Medical Association for a member to discuss a paper on "The Present Position with Regard to Food Inspection in England and Wales."

Colonel Jennings Inspects Veterinary Activities in Northwest.—Lt. Col. William E. Jennings, V. C., representing the Chief, Veterinary Division, Office of The Surgeon General, returned recently from an inspection trip in the Northwest, where he investigated problems and activities of importance to the veterinary service. On his return from that section he visited the University of Minnesota at Minneapolis, and the University of Wisconsin at Madison, for the purpose of securing information relative to special courses of instruction for veterinary officers in those insti-

tutions. Colonel Jennings also inspected the activities of the Medical Department Meat and Dairy Hygiene School, Chicago, Ill., in connection with the training of veterinary officers and Meat and Dairy Technicians, SSN 120's, and the research and development of food inspection and analysis equipment for veterinary use throughout the Army.

Awards and Citations

Colonel Oness H. Dixon, Jr.—By direction of the President, under the provisions of Executive Order 9419, the Bronze Star Medal for meritorious service in connection with military operations against an enemy of the United States during the period from Oct., 1945, to March, 1946, is awarded to Col. Oness H. Dixon, Jr., Veterinary Corps, U. S. Army.

Meat and Dairy Hygiene School.—The Medical Department Meat and Dairy Hygiene School at the Chicago Quartermaster Depot offers two courses of instruction: the Meat and Dairy Hygiene Course for veterinary officers and the Meat and Dairy Hygienist's Course for meat and dairy technicians. The Meat and Dairy Hygiene Course was initiated as a six weeks' course late in 1940. In July, 1946, the course was increased to eight weeks and in July, 1947, to twelve weeks. In all, 1,109 veterinary officers, from first lieutenant to colonel, have graduated from the 57 classes.

The Meat and Dairy Hygienist's Course for veterinary enlisted men was started at the Chicago Quartermaster Depot in December, 1945, the school having been transferred from William Beaumont General Hospital, El Paso, Texas. The first five classes at the Chicago Quartermaster Depot were of six weeks' duration. In July, 1946, the course was extended to eight weeks, and it is contemplated that the course will be extended to sixteen weeks within the next few months. To date, 374 veterinary enlisted men have completed this course satisfactorily.

Many new and different types of training aids have been obtained to improve the instruction given in the Medical Department Meat and Dairy Hygiene School. Full-sized plaster models of beef, pork, veal, and lamb, showing the various wholesale cuts, are of invaluable assistance in the classroom instruction. Other visual training aids, including charts, official and commercial films and slides, have been procured. These aids depict important phases in the inspection of many food items of animal origin. A film on Army boneless beef, produced at this school, shows in detail the grading of beef carcasses, cutting the meat into primal cuts, the proper procedure in boning and trimming the individual cuts, and the methods for packaging and freezing.

The milk analysis laboratory, which demonstrates the chemical and bacteriologic tests which are employed routinely in the analysis of each sample of fluid milk, cream, ice cream, etc., is of immeasurable value, emphasizing the importance of laboratory analysis at pre-

*Published as a news item in The Bulletin of the U. S. Army Medical Department, 7, (1948).

scribed and fixed intervals of these dairy products.

Several field trips in each course permit the student to evaluate the methods employed in the processing and manufacturing of the various foods and food products. These trips include the Chicago meat packing plants, fresh milk plants in Chicago and its suburbs, evaporated milk plants, dry milk plants, cheese factories, and poultry processing plants located outside the metropolitan area of Chicago.

Guest speakers, specialists in their fields, are used extensively in the course for veterinary officers to supplement instruction given by the regular veterinary staff and include: George F. Stewart, Department of Poultry Husbandry, Iowa State College, speaks on technical phases of the poultry and egg industry; Dr. A. L. Bortree, School of Veterinary Medicine, Michigan State College, lectures on the methods used in the inspection of dairies and the laboratory analysis of fluid milk products; Dr. W. L. Mallman, Department of Bacteriology and Public Health, School of Veterinary Medicine, Michigan State College, discusses public health problems pertaining to food inspection and sanitation of establishments; Dr. E. H. Parfitt of the Evaporated Milk Association, Chicago, gives valuable information on the storing and processing of evaporated milk; Prof. S. T. Coulter, Division of Dairy Husbandry, University of Minnesota, presents technical and practical information on the manufacture of butter and ice cream, including technical points affecting grading factors; and Dr. G. N. Dack, University of Chicago, an authority on food microbiology, speaks on the causes of food poisoning and

methods the veterinary officer can employ to prevent outbreaks. Several specialists from the trade are invited to discuss technical subjects in their field. Veterinary officers, experienced in food inspection overseas, are ordered to the school for short periods to familiarize each class with the food inspection problems confronting the veterinary officer in overseas theaters.

These two courses given in the Medical Department Meat and Dairy Hygiene School are designed primarily to train the veterinary officer and the veterinary enlisted man for the exacting duties of military veterinary food inspection. Only those enlisted men who are assigned to the veterinary service are selected; they must possess the prescribed prerequisites. On the completion of the course, they serve as assistants to veterinary officers engaged in food inspection work.

The highly perishable nature of the products being inspected, the wide range of grades and types of products, their high monetary value, and the many new and far-reaching developments in the food industry are some of the reasons why this school must continue to train veterinary personnel in the best possible technical and practical manner.

DEATHS

★**C. R. Borden** (AMER '92), Taunton, Mass., died on March 31, 1948. Dr. Borden had been a member of the Massachusetts Veterinary Association for fifty years, and of the AVMA for fifty-six years.

★**Glenn L. Ebright** (CVC '08), while attending the meeting of the AAHA on April 20, 1948, was stricken and died suddenly. Dr. Ebright was born on Aug. 17, 1885, in Shreve, Ohio, and moved with his family to Indiana in 1892, where he remained the rest of his life. Upon graduating from the Chicago Veterinary College in 1908, he entered practice immediately. In April of this year, he completed forty years of practice. He was an active member in the AVMA, the AAHA, and the Indiana State, Northwestern Indiana, and Chicago veterinary medical associations.

Dr. Ebright is survived by one sister, Miss Ethel E. Ebright of Hammond and Tucson, Ariz. Mrs. Ebright passed away four years ago.

★**Colby Graves** (API '35), 37, Culpeper, Va., died suddenly on Oct. 10, 1947. Dr. Graves was admitted to the AVMA in 1941.

★**Ralph C. Jenks** (AMER '97), Ossining, N. Y., died March 1, 1948. Dr. Jenks was admitted to the AVMA in 1913.

★**Chelsea T. Paulish** (OSU '26), 46, Bentonville, Ark., died suddenly on Feb. 3, 1948. Dr. Paulish was a member of the AVMA.

Wallace L. Williamson (OSU '15), 58, St. Paul, Minn., died Apr. 21, 1948, from coronary thrombosis. Dr. Williamson, a veteran of World War I, served before and after that war in the U. S. BAI Meat Inspection Division at Cedar Rapids and Ottumwa, Iowa, and at Austin and St. Paul, Minn. Dr. Williamson was a member of the AVMA and of the National Association of Federal Veterinarians.

★Indicates members of the AVMA.



—Army Institute of Pathology

Instruction in prevention of food-borne diseases and epidemics is comprehensive in meat and dairy hygiene school and well presented by specially trained veterinary officers and civilian consultants who are specialists in their respective fields.

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This potent antihistamine, PYRIBENZAMINE Hydrochloride, has brought quick relief from allergic symptoms in most cases.

In dogs, PYRIBENZAMINE has been successfully used for the relief or control of allergic dermatitis, pruritis, urticaria and eczema.

In horses, the antihistamines are reported effective in controlling or relieving symptoms of laminitis¹, food

allergy, swellings (edema) due to severe bee stings.

In cattle, PYRIBENZAMINE is indicated when bloating or tympanites may be due to allergy, particularly following ingestion of large quantities of food or food material.

Intravenous treatment is indicated for toxic symptoms presumably due to excess histamine following retained placentae.

¹Chavance, J. Vet. Med. 41: (1946) 199-201

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An' Related Topics

It Took an M.D. to Tell 'em

In its silver jubilee issue, the *Western Livestock Journal* (Dec., 1947) asked nine men, all prominent in livestock circles, "What do you think has been the most significant development affecting the livestock industry during the past twenty-five years?" The first eight variously named pest control, greater popular appreciation of the nutritive value of meat, better breeding and feeding, and progress in disease control—with never a reference to the veterinary profession. But the ninth man, Dr. Wesley Minzel, a physician who breeds registered Polled Herefords at Colville, Wash., made up for all of them in an outstanding tribute to veterinarians. He listed bovine tuberculosis, tick fever, hog cholera,

blackleg, and anthrax as diseases against which veterinary victories have been scored.

The nourishment of the sick, meaning the bridging of declining energy over the period of illness and building up the lost strength during convalescence, is a phase of veterinary practice to keep uppermost in mind.

Drug Producers: Your Samples Are Showing.—The large size of some free samples distributed by drug manufacturers to physicians brought a protest at the recent annual session of the Midwest Drug Conference (Kansas City, Mo.). Oversampling to physicians, the druggists complained, has encouraged them to do their own dispensing.



—Acme Photo
These 4 kittens, born to the black cat, Jinx, in Chicago, are joined together at the spine. The owner expected to consult a veterinarian about the possibility of having surgery performed, according to Acme Photo.

PENICILLIN IN OIL AND WAX

IN A DOSAGE FORM ESPECIALLY DESIGNED
FOR THE SMALL ANIMAL FIELD



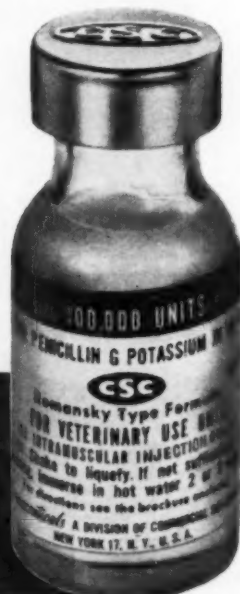
● The scope of penicillin therapy in the small animal field is greatly widened through the use of Penicillin in Oil and Wax, 100,000 units per cc. This preparation makes possible effective penicillin treatment with only 1 or 2 injections daily, hence overcomes the drawbacks attending the use of aqueous solutions that require injection every 3 hours around the clock.

Each cc. provides 100,000 units of highly purified crystalline penicillin G potassium. Penicillin in Oil and Wax is semiliquid at room temperature and requires no refrigeration. It is available in the economical 10 cc. size vial for multiple injections. Supplied also in 10 cc. vials containing 300,000 units per cc. for use in larger animals.

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A plastic film for eggs that will keep them fresh for a year without refrigeration is announced by Dr. Gustav Egloff of the Universal Oil Products Co.—*Sci. News Letter*.

Of the 45 (or so) liters of water the human body contains, 30 of the liters are inside of the body cells. The exchange between the intra- and extracellular fluids is the most vital of life's processes.

Is DDT Safe for Livestock?

"Don't be surprised if the USDA comes out later this year with a strong precautionary warning against the use of DDT as a livestock spray," declares *Western Livestock Journal* (Feb., 1948). The point in question, now under investigation by USDA workers and other groups, is whether DDT can become concentrated in the fatty tissues of animals to such an extent that it will be injurious to consumers of meat. Currently acceptable evidence suggests that milk from DDT-sprayed cows is unlikely to be toxic, but there is still some question about butter from such cows.

More or Fewer Farmers, Which?

The social sciences appear to be in agreement that urbanization in this and other important countries is planting the seeds of self-destruction; that is, the heavy swing of population from farm to town is a swing in the wrong direction. It is leading to

- 1) Increase in the number of aged people.
- 2) Decline in the birth rate.
- 3) Decrease of infant mortality without effect on the total population.
- 4) Increase in sterility.

As a distinguished sociologist, when viewing the population trends of certain nations, puts it, "the country is its cradle and the city its grave." In short, the flight from the land is a darkening cloud, without any sign of a silver lining. Much of it stems from abolishing horse power in agricultural pursuits, which industrial urbanization glorifies under the name Progress.

While the trend is irreversible in so far as anything the veterinary profession can do, the fact remains that its doctrine in this respect is unimpeachable.



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Everyday Streptococcus Infections . . . Owing to its relatively good tolerance, Neoprontosil is of particular value in many streptococcus infections which are encountered in everyday veterinary practice, including septicemia, strangles, metritis, mastitis, distemper and meningitis. Relatively small doses have yielded very good results.

Write for booklet which contains detailed discussion of indications, dosage, manner of use, and side effects.

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For Oral Administration: Neoprontosil tablets of 5 grains, bottles of 50, 500 and 5000. (Caution: Not to be used for injection.) Neoprontosil capsules of 3 grains, bottles of 50 and 500. (Caution: Not to be used for injection.)

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Crystallization

While some viruses of plants have been crystallized, none of the animal diseases has ever been reduced to the crystalline state because, says Wyckoff (*J. Am. M. A.*, Apr. 24, 1948 :1082), their particles lack the uniformity required to pack into the three dimensions of a crystal. The high magnification of purified suspensions of viruses under electron microscopy is giving an insight to the enigma of crystallization.

The Lesions of Fatal Thirst—Deportees by rail into Germany during the war, deprived of water for 60 to 120 hours in hot weather, died in large numbers *en route* or after arrival. Hyperthermia, delirium, depression, coma, anuria, and cerebral manifestations predominated. Autopsies revealed blood suffusion of the esophagus, venous congestion, cerebral edema, and general dehydration. The mortality was lower in winter.—C. Ricket, "Death from Thirst," *Abst. J. Am. M. A. Dec. 13, 1947*: 1038.

New Series—Associated Serum Producers

The Associated Serum Producers are furnishing a new illustrated service to newspapers comprising 12 columns of feature articles and interesting pictures. More than 2,600 newspapers are receiving the material for release during spring and summer months. They are issued over the name of the American Foundation for Animal Health and discuss such subjects as baby pig disease, calf problems, brucellosis, foot-and-mouth disease, bovine tuberculosis, hog cholera, cowpox, disease carriers in poultry flocks, anthrax, and other timely topics. In each case, animal owners are warned of these disease dangers and the articles bring out the importance of relying on the veterinarian for diagnosis and proper treatment.

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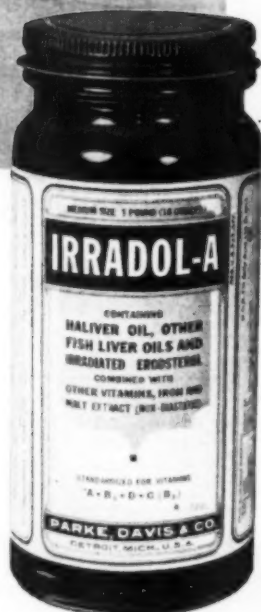


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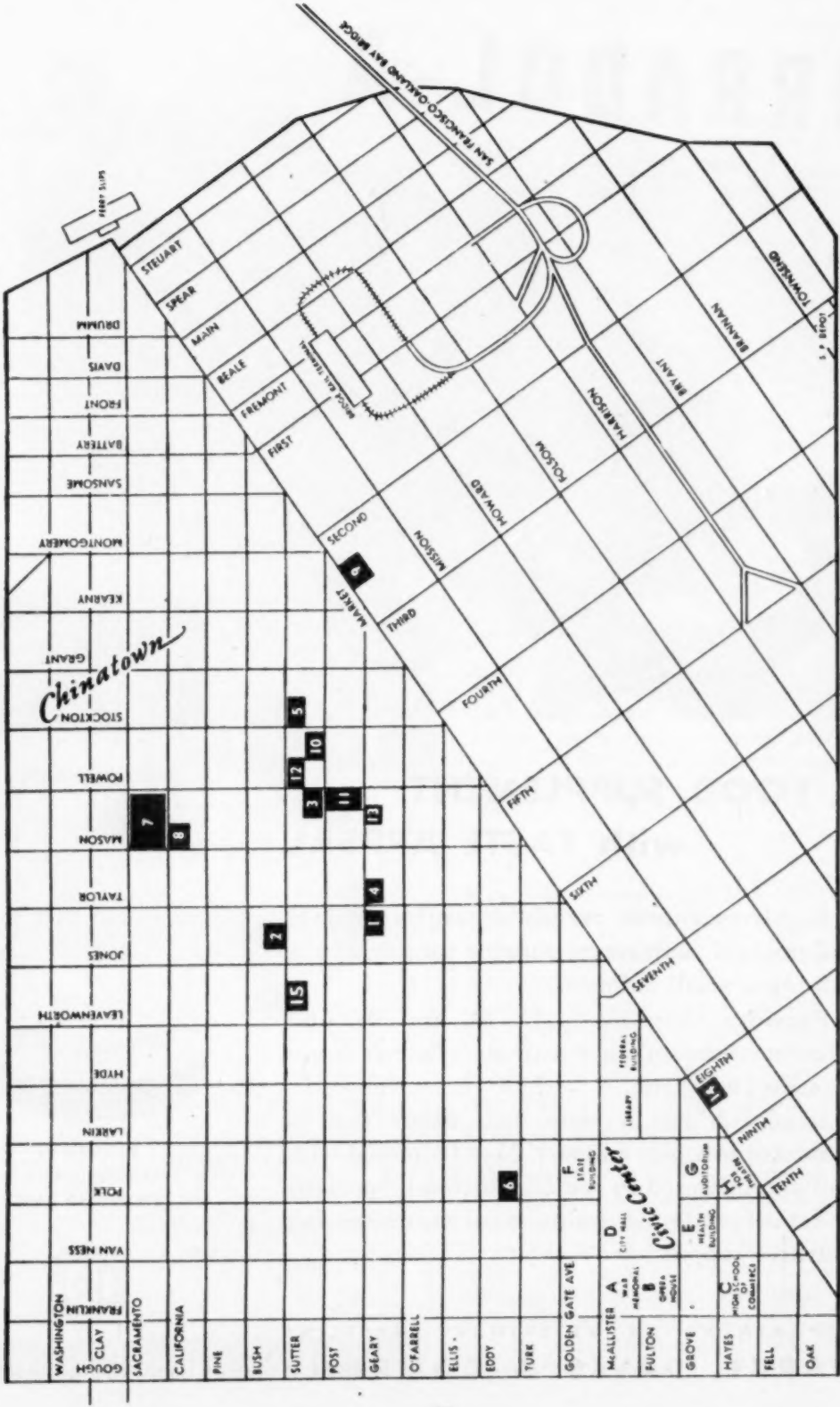
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Street Plan of Downtown San Francisco Showing Location of Hotels for AVMA Convention Housing



KEY TO HOTELS

- | | | | | | | | |
|---------------|---------------|--------------------|-----------------|-----------|-----------------------|--------------|---------------|
| 1. Bellevue | 3. Chancellor | 5. Drake-Wiltshire | 7. Fairmont | 9. Palace | 11. St. Francis | 13. Stewart | 15. Commodore |
| 2. Canterbury | 4. Cliff | 6. Embassy | 8. Mark Hopkins | 10. Plaza | 12. Sir Francis Drake | 14. Whitcomb | |

HOTEL RESERVATIONS—SAN FRANCISCO SESSION

Eighty-fifth Annual Meeting, American Veterinary Medical Association

Aug. 16-19, 1948

A Housing Bureau has been organized for the San Francisco session. All requests for rooms will be handled in chronological order; therefore, send in your application as early as possible.

Use the form below and be sure to indicate your first, second, and third choice hotel. Because of the limited number of single rooms available, you will have a better chance of securing accommodations if request is for rooms to be occupied by two or more persons. Rates quoted are for the room; in case of double occupancy, the rate will be shared.

All requests must be accompanied by a deposit check for \$5.00 per person or \$10.00 per room, made out to "AVMA Housing Bureau." Due to crowded conditions, hotels cancel unclaimed reservations by 6:00 p.m. Therefore, to avoid any misunderstanding, the deposit holds the room on your arrival day—whatever the hour. Bring your confirmation slip or cancelled deposit check as proof of reservation.

All reservations must be cleared through this Housing Bureau. All requests must give definite date and approximate hour of arrival and departure; also names and addresses of all persons who will occupy rooms. All reservations will be confirmed if request is received not later than Aug. 1, 1948.

Schedule of Hotel Rates—See Locations on Opposite Page

Hotel	Single	Double Bed	Twin Beds	Parlor Suite	2-Bedrm. Suite (Connecting Bath)
*Bellevue		\$5.00	\$6.00	\$10.00	
*Canterbury		\$4.00-\$5.00	\$4.50-\$6.00		
Chancellor		\$4.00	\$4.50		
Clift		\$6.00-\$8.00	\$7.00-\$10.00	\$12.00-\$15.00	
Commodore			\$5.50-\$7.50		
*Drake-Wiltshire		\$3.50-\$4.00	\$5.00		
*Embassy		\$3.50-\$4.00	\$3.50-\$4.00		
Fairmont			\$6.00-\$10.00	\$18.00-\$22.00	
Mark Hopkins	\$7.00-\$9.00		\$10.00-\$14.00	\$20.00-\$30.00	
Palace		\$8.00-\$11.00	\$8.00-\$11.00	\$14.00-\$20.00	
Plaza		\$5.00-\$6.00			
*St. Francis		\$8.00-\$10.00			\$18.00
*Sir Francis Drake		\$8.00-\$10.00	\$9.00-\$12.00		
Stewart		\$4.00-\$4.50	\$4.50-\$5.00		\$9.00
*Whitcomb		\$6.00-\$9.00	\$7.00-\$9.00	\$12.00-\$27.00	\$11.00-\$13.00

Charge for each extra person in room, \$1.00 to \$2.00 per day.

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Date

Please make reservations noted below:

(Three choices MUST be shown or request cannot be handled by Housing Bureau.)

First choice hotel.....

Second choice hotel.....

Third choice hotel.....

Accommodations and Rate Desired

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Double RoomRate.....

Twin Bed Room.....Rate.....

Parlor SuiteRate.....

2-Bedrm. suite (connect. bath)....Rate.....

Arriving onat.....a.m.....p.m.

Leaving onat.....a.m.....p.m.

Room will be occupied by:

NameAddress

NameAddress

NameAddress

My check for \$.....is enclosed to bind this reservation.

Signed

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CityZoneState



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Sizes:

3 upper stalls 24"x24"x28"
2 lower stalls 36"x36"x28"
Over-all size 28 1/2"x26" wide x
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(Continued on page 44)

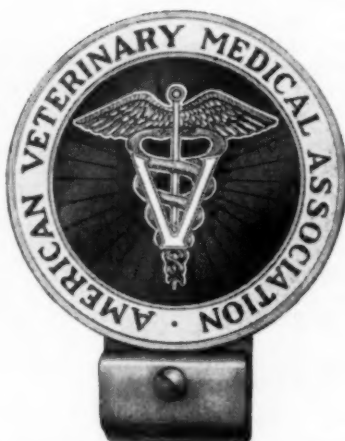
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